

# THE BOSTON Medical and Surgical JOURNAL

VOLUME 194

FEBRUARY 18, 1926

NUMBER 7

## ORIGINAL ARTICLES

### HELIOOTHERAPY

BY JOHN B. HAWES, 2ND, M.D.

THE most remarkable thing about heliotherapy or sunlight treatment is that we waited so long before appreciating this most efficient as well as the cheapest curative method for tuberculosis that we possess. Fresh air is easier to obtain than sunlight but certainly nothing else is. There has been an impression, I believe, among the rank and file of the medical profession, first, that sunlight treatment is available only in certain climates and at certain altitudes where there is more sunshine and where the air is less dense and dusty than in New England, and second, that this method of treatment is applicable only for patients who are in sanatoria or hospitals. Such is not the case. I am therefore describing in considerable detail my methods of using sunlight treatment among my own patients in their own homes scattered in New England and will try to show how easily this can be done providing certain dangers are guarded against. I am speaking purely of the use of heliotherapy in tuberculosis, pulmonary and non-pulmonary, and in certain debilitating conditions where a tuberculous toxemia is suspected although not proven to be the cause of symptoms.

*Object of treatment:* What we hope to do by means of the use of sunlight, artificial or real, is to get the entire body as deeply tanned or pigmented as possible. While no one will state definitely that those persons who burn and who do not tan are never benefitted by such treatment, it is a well-known fact that such patients do not do so well as do those who pigment easily.

*Indications for heliotherapy:* In non-pulmonary tuberculosis, whether the disease involves the bones or joints, peritoneum, glands or other organs, I know of no contraindications to sunlight treatment providing that it is carried out under careful medical supervision. At the beginning of treatment all patients, whether adults or children, must be watched carefully for signs and symptoms of too much sunlight. These will be described later. I have never seen any signs of such a reaction in children but have not infrequently observed them in adults.

The use of sunlight in pulmonary disease, however, presents a far different aspect. I am unwilling to recommend heliotherapy for any

patient with pulmonary tuberculosis who is running a constant fever of over 99 or who has an abnormally rapid pulse or whose disease is manifestly active. I believe it should be reserved for chronic cases, partially arrested, who appear to be in a stationary condition neither advancing nor going backward. In such instances, heliotherapy, whether with actual sunlight or by means of one of the quartz lamps will occasionally do a great deal of good. My feeling about the use of sunlight treatment in such cases is the same as that which I have toward tuberculin, namely, that the first criterion in its use is to see that it does no harm and to realize that while it may do a great deal of good it likewise may do the reverse.

*Signs and symptoms of too much sunlight:* The signs and symptoms of over much sunlight are practically those of a tuberculin reaction, namely, a rise in temperature and pulse, general symptoms of malaise, lassitude, headache, weakness, and in those cases where the process can be seen and heard, signs of renewed activity. In tuberculosis of the eye, for instance, I recall a case where there could be no possible doubt as to the increased activity of the disease following too much sunlight as shown by the increased redness and signs of inflammation in the eye itself. In pulmonary disease likewise I recall a case where rales became present which had been hitherto absent and where the whole process became more active. As I have said before, this rarely happens in the case of children but frequently takes place in adults unless the greatest of care is observed. The directions for treatment which I have printed out and give to my patients or their physicians are as follows:

*"Directions for taking sunlight treatment.*  
The object of treatment is to gradually expose the entire body to the sun's rays with the object in view of getting the skin of the entire body deeply tanned if possible. The head must always be kept in the shade either by means of a screen or a bonnet, etc. Dark colored glasses will protect the eyes from the glare. When the chest is reached there must be a wet towel or cloth over the region of the heart.

Directions must be followed as closely as possible as it is easy to do harm rather than good by going ahead too fast.

1. With the patient lying on the back, expose the legs below the knee to the sun one-half hour three or four times during the day with at least one hour intervals. Do this for three or four days according to the amount and intensity of sunlight.

2. Expose the legs from the hips to the knees as in number 1 and increase by ten or fifteen minutes the amount the legs from the knees downwards are exposed.

3. Continue in a similar way exposing the abdomen from the ribs to the hips one-half hour three or four times a day, increasing by ten or fifteen minutes on the amounts that the thighs are exposed and still more on the amount that the legs below the knees are exposed.

4. Continue with the exposing of the chest to the sun with the precaution as above mentioned of having a wet towel or cloth over the area of the heart.

5. Next, repeat the process with the patient lying on the stomach exposing the back of the legs, thighs, etc., as was done with the front.

6. Finally, after patient has been accustomed, the entire body should be exposed to the sun's rays for two or three hours or more each day.

These directions must be modified according to weather conditions and according to the patient's reaction to the sun. Some patients whose skin burns very readily should better make the intervals only 15 minutes five or six times a day. Accustom the body to the open air gradually by protecting it from strong winds, etc.

Report at regular intervals to your physician and consult him if any unusual symptoms develop."

These directions need little comment. It is advisable, however, to sit down with the patient or the parents and go over in detail so as to make sure there is no misunderstanding. It should be made clear that the sunlight must be direct and not through glass and likewise that there is a certain amount of benefit at least in exposure to light even if the sun is obscured by fog or cloud. From the point of view of the patient's welfare it is far better to have a regular routine for this treatment whether the sun is actually shining or not because at all events the patient gets the benefit of fresh air and rest during these periods even if he does not get sunlight, while in addition his body becomes accustomed to the cold which in an adult is an important factor. Patients and their parents are very apt to worry lest exposure of the naked body or parts of it will lead to colds or chills, etc. This will not happen if ordinary common sense is observed. I have one patient in mind at present who certainly could not stand exposure of her body to the open air during the winter months even during the sunniest

of days. By means of French windows in her room, however, she can so arrange it that she can get the actual sunlight with the comparative warmth of indoors. The hands and feet should be kept warm by means of gloves, woolen socks, hot water bottles or electric pads. There is no form of treatment in which ordinary common sense on the part of those carrying it out is more needed.

*Artificial sunlight:* So far in these remarks I have referred to the use of direct sunlight and have said nothing about the use of artificial sunlight as produced by means of one or another of the various quartz lamps now on the market. The advantages of artificial sunlight are of course manifest: first, by means of a lamp sunlight can be given regardless of sunshine and weather; second, it can be done indoors so that delicate patients who object to the cold do not suffer; third, the dosage can be more accurately gauged; fourth, it produces results in a shorter period of time which from its psychological effect alone is helpful.

Against these arguments and in favor of actual sunlight are more potent factors. For instance, in order to take sunlight treatment the patient must be in the fresh air because sunlight coming through window glass loses its potency. Next, and of most importance, is the increasing length of the periods during which the patient is exposed to sunlight when he is at absolute rest. This is of inestimable value. Again, sunlight is cheap whereas a quartz lamp is expensive while, finally, the lamp because of the intensity of its rays can do far more harm in a short while than actual sunlight can ever do. Therefore, on the whole, while the lamp is a useful and impressive piece of apparatus to have, I do not think it at all necessary for the general practitioner or his patient, except in rare instances where the family is well able to afford a lamp and also a nurse able to supervise its use. Under such circumstances I would recommend it for almost any case of non-pulmonary tuberculosis during the winter months to use as an adjunct to actual sunlight. During the summer months it might well be stored away. There is a very real danger of becoming too enthusiastic about the ultra-violet rays in general and in these lamps in particular lest they be looked upon by the physician and his patients as a quick and sure cure for all tuberculous conditions with the result that the real factors which go to cure tuberculosis,—rest, fresh air and good food,—are apt to be neglected. Sunlight whether artificial or real must be looked upon as an adjunct to treatment, important or of less importance as the case may be. The cure of tuberculosis does not permit of any short cuts. Rest, fresh air and proper nourishment over long periods of time alone are the foundation on which the arrest of any given case is built. Surgery, pneumothorax, tuberculin and sunlight are

adjuncts to treatment. We do not yet know exactly how sunlight works and why it does good. I had supposed that the production of pigmentation was the important factor and that only those patients who became deeply tanned were benefited. I still believe this to be the case in the great majority of instances but from my own personal experience I know that this does not always hold true. I do know that prolonged rest out-of-doors with sunlight in gradually increasing doses certainly does a great deal of good in non-pulmonary tuberculosis and may do much good in certain patients with pulmonary disease as described above. The following cases taken from my own records are illustrative not only of what sunlight can do but likewise of the harm it can do as well when the patient is not under close medical supervision.

H. F. This young girl of 13 was operated on in the spring of 1925 for what was supposed to be an acute appendix. She was found to have a definite tuberculous peritonitis in the region of the appendix and lower cecum. Her parents planned to take her to the mountains or to a trip abroad but I persuaded them instead to take a house at Cape Cod for the summer. Here under the supervision of a trained nurse acting under my directions sunlight treatment was carried on most faithfully. By an ingenious arrangement of canvas curtains in the form of a square about ten feet on a side this girl could be exposed to the sunlight from whatsoever direction it happened to come and yet be protected from winds, etc. When I last saw her the skin over her entire body front and back with the exception of the chest was a deep mahogany color while she had gained wonderfully in weight and general condition. She is now back at school.

R. L. A woman of 33, living in a separate house in a suburb of Boston, was referred to me by an ophthalmologist with a diagnosis of tuberculosis of the eye. There was no evidence of any pulmonary disease. She was a very marked type of blonde. By means of a balcony and French doors leading from her bedroom she started in on sunlight treatment. After trying it faithfully for a week exposing her body according to my directions for 10-15 minutes at a time, she told me she felt miserably after each exposure with a headache, temperature over 100, and general malaise, while the eye became markedly inflamed. I cut down the sunlight to not over 2-3 minutes at a time, increasing very gradually. This was carried on for over a year so that at present she is able to take an hour's exposure without any symptoms. The process in her eye which had not been improving and in fact had been slightly progressing has now reached a stationary condition while her general health is markedly improved. This is a striking example, however, of extreme hyper-

sensitiveness to sunlight. I might add that for a while I treated her with injections of tuberculin but finally gave them up on account of the severe reactions following infinitesimally small doses.

A. B. N. A draftsman, age 38, referred to me by his family physician in July, 1924. His condition at that time was distressing in the extreme. The second and fifth toes on his right foot were swollen, deep purplish, soft and mushy; the second toe on the left foot was in almost as bad a condition; and the first finger on his left hand likewise, while the X-ray of his chest showed an old process in the lung, all due to tuberculosis. I put him on heliotherapy at once although he had to take it on an extremely modified regime as he could not afford to give up his work for this purpose. He had been advised to have both toes and fingers amputated but I persuaded him not to have this done. He took his vacation in Maine in September when he started sunlight treatment very systematically. He did not tan but burned easily. He could stand only one hour's sunlight in a day but he began at once to see improvement. After returning from his vacation he went to work and has continued so regularly, taking sunlight treatment on Saturdays, Sundays and holidays. Last winter I had him take a few treatments with a lamp but only for a short period. In July, 1924, he weighed 117; when I last saw him on October 30, 1925, his weight was 132. He felt better than he had for years. The process in his toes had subsided to a very great extent and the 4th finger of his left hand was normal except for a stiff joint which will doubtless be permanent. At no time was there any pigmentation on his skin and during the past six months there had been no burning. In this case I feel that I can justly attribute almost his entire improvement to sunlight as he made no radical changes in his method of living nor did he take artificial sunlight for a sufficient length of time for it to have any marked effect.

C. W. J., aet. 24, first came to see me in September, 1918, as a case of incipient pulmonary tuberculosis. His lungs, however, had remained fairly quiescent but the chief complaint has been a tremendous enlargement of the glands on both sides of his neck extending down to the clavicle which gradually developed in spite of tuberculin, the best of surgical treatment and general hygiene, with many discharging sinuses and a truly distressing condition. A year ago I persuaded him to give up his work and devote his attention to his health. He spent that winter in Saranac Lake taking heliotherapy chiefly with a lamp and last summer at the seashore where he exposed his whole body to the sun most vigorously. He was naturally dark and tanned easily. In his case, I believe it has been the combination of lamp treatment and real sun-

light which has caused the great improvement in his condition. When I last saw him in October, 1925, his general condition was excellent, he had gained weight, his glands had disappeared and the sinuses were all closed. During the entire period that I have watched him, his general hygiene had been excellent and the only factor that I know of which could have caused this marked improvement has been heliotherapy.

J. G., aet. 30, had been under my care with an early pulmonary tuberculosis for some years. He had been doing very well, so much so, that I had allowed him to go back to his work at full time. February, 1924, he went to Florida for a few weeks. Here, having read about sunlight treatment in the papers and seeing everybody exposing themselves to the sun on the beach, he proceeded to do the same. He came to see me in March, wonderfully tanned, but in poor general condition. His lungs, which had been quiescent showing very little moisture, were then active again. The disease steadily progressed, he developed a tuberculous meningitis and died shortly afterward. I believe the two months of sunshine in his case was directly responsible for this unfortunate outcome.

M. S. B. This young girl of 12 was sent to me by her family physician in May, 1925, because of poor appetite, malnutrition, and being generally underweight and in poor condition. She was said to have tuberculous bronchial glands. Although I did not feel at all sure that the enlarged glands at the root of the lung were necessarily tuberculous, I did feel that it should be taken for granted that such was the case and started treatment accordingly. I explained to her mother, therefore, about sunlight treatment and gave her my directions for carrying this out. She spent the summer at the beach and improved steadily. I saw her in October, 1925, and found her in splendid condition, having gained 6 lbs. in weight, eating and sleeping as well as could be desired and apparently in a normal condition. She was deeply tanned all over and gave no history of having had a reaction of any kind. I believe that heliotherapy has been the chief factor in this girl's improvement.

S. E. S. This young woman of 26 was referred to me in July, 1925, on account of an unexplained fever with marked weakness, loss of strength and general debility which had continued for nearly a year. I believed that a slight focus of tuberculosis was the cause of her symptoms and treated her accordingly. She spent last summer at Cape Cod under the best of hygiene but owing to the temperature I did not advise sunlight treatment. She made a slight improvement during this period but not as marked as I should desire. Early in October on her return from the Cape I saw her and decided that

as her temperature had come down practically to normal, she should try sunlight treatment. I therefore gave her a copy of my directions and explained the details to her and to her mother. I saw her again 3 weeks later, markedly improved. In fact, she had gained more during this short period than during the entire 3 months that she had been under treatment previously. She did not burn and had only a slight tan. Her temperature was normal, she had gained 3 lbs. in weight and felt much better. I feel that in this case sunlight treatment has been a very marked factor in her improvement but I do not believe in a similar instance that I would advise trying it earlier than I did on account of the temperature.

H. M. McF. This boy of 7 was referred to me in April, 1925, with a history of having come down with an acute illness and a high fever while abroad the previous summer. X-rays taken at that time and at intervals afterwards showed a definite rounded mass in the right upper lobe, apparently an unresolved broncho-pneumonia. In addition to this, and far more important, however, was a large mass of glands extending from the right hilus region upwards which Dr. L. B. Morrison and I believed to be undoubtedly a tuberculous process. The boy's physical condition was fairly good. I advised his mother to take him to the Cape for the summer which she did. I spoke to her about heliotherapy and put him on this treatment along with a strict regime limiting exercise and giving him large amounts of rest. I do not believe that heliotherapy was carried out in detail in his case but that he merely went around in an abbreviated bathing suit exposing his legs and arms and a good deal of his chest and shoulders to the sun. His condition steadily improved so that when I saw him in October, 1925, the process in his lungs had almost entirely cleared up according to the X-ray and I found no abnormality clinically. I do not feel that heliotherapy has been a large factor in this boy's improvement although it certainly has helped to some extent at least.

#### SUMMARY AND CONCLUSIONS

1. Sunlight treatment is indicated in practically all cases of non-pulmonary or so-called surgical tuberculosis. It is not indicated in febrile cases of pulmonary disease or where there is other evidence that the condition is active.
2. Actual sunlight is better than artificial sunlight. If the latter is used by means of a lamp it should be as an adjunct to exposure to actual sunlight.
3. Heliotherapy should not be looked upon as the only means of treatment nor as the most important means of treatment but as an adjunct to rest, fresh air, proper nourishment and general hygiene.



4. Signs and symptoms of too much sunlight, whether artificial or real, are the same as a tuberculin reaction, probably from the same cause. They are increased temperature and pulse, general malaise, headache, debility, with sometimes renewed activity in the tuberculous focus.

5. Sunlight treatment, whenever possible, should be done under the supervision of the

physician; in pulmonary cases, this is absolutely essential.

6. Sunlight treatment, in some form or another, can be carried on in the patient's home and does not necessarily require sanatorium or hospital equipment.

7. Sunlight treatment should be carried on methodically and if possible according to a definite schedule.

## ERYTHEMA ARTHRITICUM EPIDEMICUM\*

### Preliminary Report

BY DR. EDWIN H. PLACE, DR. LEE E. SUTTON, JR., AND DR. OTTO WILLNER

AN epidemic of an apparently new type of disease occurred in Haverhill, Mass., a city of about 55,000 population in January, 1926. The disease was first brought to the attention of the Health Department Jan. 22 by Dr. Carl Mindlin who had seen eight cases that day. Jan. 23, we made a rapid survey of some of the cases, took blood cultures, made white counts and have continued our observations to the present. We have studied more than 45 cases and it is estimated that about 60 cases occurred. The first cases became ill on Jan. 12 and the latest case Jan. 29.

The onset is sudden, usually in the severer cases with severe chills, vomiting, intense headache, malaise and prostration. The vomiting and chills may be initial only or may continue through three days.

About 60% of the cases seen vomited at onset and in about 10% vomiting continued for more than 24 hours.

Chills occurred in 60% and the remainder complained of chilliness. The headache was frequently distressing. Milder cases complained of fever and malaise. Dizziness occurred in several of the severer cases. Fever at onset ran as high as 103-105°, subsiding almost to normal during the third or fourth day, later recurring and running in several cases a remitting curve for at least two weeks.

The eruption appeared from the first to the third day usually on the extremities, especially the extensor aspects and about the joints, and in severer cases across the shoulder girdle or over trunk and face. In type it was a blotchy, irregular, maculopapular, dull red eruption varying greatly in shape and arrangement, and from 1 or 2 millimeters to 3 or 4 millimeters in diameter. The macules showed no tendency to clear in the centers and on the whole were discrete. In general, the rash varied in type from the rubellaform to the morbilliform.

The eruption increased from 1-3 days and lasted in cases under observation from 3-7 days, often leaving a moderate pigmentation, which lasted in some cases two weeks.

\*From the South Department, Boston City Hospital.

In mild cases the eruption might fade so that it would only be noted for one day. Often petechial haemorrhages could be made out on the dorsum of the feet, toes and soles for many days after the eruption had faded from arms and hands. The tourniquet test produced in those tried a very marked haemorrhage into the lesions.

Desquamation frequently followed and in a few cases was profuse on the backs of hands and wrists.

Joint involvement appeared in from one to four days, usually on the third day. The joint involvement was practically always multiple and varied from two to all the large joints. In many cases finger and toe joints were involved. The jaw joints were not involved, and in only one case was the sterno-clavicular. The vertebral joints were possibly involved in some as there was great pain in turning or moving the back. Objectively the joints varied from negative to severe swelling and redness with fluid in the capsule. Marked fluid in the knee joint was noted in at least six cases. The joint involvement was often exceedingly painful and crippling and especially dominated the latter part of the clinical picture. It persisted usually for 3-4 days and in some cases for over two weeks, and is still persisting.

From the joints in two cases was obtained a yellow clouded fluid showing a slight flocculent precipitate on standing, and polymorphonuclear leucocytes.

Respiratory symptoms were present at the onset in a small proportion of the cases, chiefly coughing and in many there was a slight sore throat. The throat showed a diffuse dull redness, extending over the soft palate. Two cases developed a mild bronchopneumonia on the fifth and third day of disease which lasted for about five to seven days.

Delirium was present in four cases—in two active, with attempts to get out the window, etc. Stupor was moderate in two of these cases, but the majority showed no mental dullness.

The heart was normal in all cases except one who had an old endocarditis. Several showed a

faint systolic murmur of the functional type, in convalescence. One patient was seen during the epidemic who had a very acute endocarditis and pericarditis with pleural rubs developing later. He had had joint involvement preceding but there was doubt of an eruption and the blood findings and clinical course did not agree with this disease. This case was thought at the first and subsequently to be acute articular rheumatism. He had no epidemiologic connection with the other cases.

No glandular enlargement was present and in only one case was the spleen palpable.

The blood showed the white cells count varying from 6,800 to 19,000 per cu. mm. averaging 12,000. There was no striking change in the differential counts—the highest lymphocyte percentage being 30. The haemoglobin tended to be somewhat low—the red cells showed some achromia and the platelets were normal in smears.

Dark field illumination in two cases was negative.

The liver was not enlarged nor tender and no definite jaundice was made out although slight tinging of the skin and sclera was noted in two cases.

#### *Epidemiology*

The epidemic was confined to a small area along the river about one half mile in length including two roughly parallel streets and the short intersecting streets. The patients were chiefly Lithuanians, with a number of Poles and Italians. In 16 families there was more than one case and the highest number in any one family was eight.

The age incidence varied from 8 months to about 50 years. About 40% were males.

Occupation of the male adults was almost wholly in shoe factories or small provision stores in the neighborhood.

The homes were poor or moderate and a majority were neat and clean.

Rats were present in a few of the houses and vermin were not found.

Provisions were purchased from a number of small provision stores in the neighborhood. Raw foods, as lettuce and occasionally celery, were frequently eaten and in one case raw meat. The water was the city supply and the city sewerage served this section.

The milk supply was either directly from one dairy or indirectly through four stores receiving the same supply from this dairy, except in two cases. In one of these, ice cream produced from this milk was consumed.

The case not known to take the milk was an 8 months baby who two days before onset spent the afternoon at a house in which four cases were ill with the disease. No milk was said to have been taken there except from a bottle which was taken along from home by the mother. This is the only case suggesting contagion.

In one case, a man came from Boston, Jan. 25 to nurse his father and developed the disease Jan. 29. He, however, drank the same milk supply Jan. 26 and 27. After Jan. 27 this milk supply was pasteurized. This case is the only one which clearly indicates the incubation period of from 2-3 days.

The dairy consisted of 12 cows none of whom were ill. The last cow to freshen was Jan. 21 and whose milk had not been used. The last previous fresh cow was early in November. None of the large family of this farmer was found to have been ill and on Jan. 27 showed no signs of this disease. Two cans of milk were received by the dairy from two other dairies nearby. Nothing was found to indicate disease in these dairies.

Dr. Bricault, Veterinarian, of Haverhill, found no disease. Samples of milk from all cows of this supply were negative bacteriologically.

The organism described below was isolated from the blood in ten out of twelve blood cultures. One negative blood culture was from a patient on the 10th day of the disease; the other was badly contaminated with a staphylococcus. In addition to obtaining the organism from the blood, it was cultivated from two joint fluids, one being from a patient whose blood had yielded the organism at two different times.

This organism is a Gram negative, rod-shaped organism, in fluid media growing as long, filamentous threads and on solid media tending to be shorter. On all media, its pleomorphism is marked; the threads often show oval or spherical enlargements, which may occur at any point in the filament. In fluid media, the organism tends to grow in masses of interwoven threads.

The most favorable media found to date are aseptic fluid broth and blood broth.

Further details regarding this organism cannot be given at present as the short time since its isolation has not permitted more than a preliminary study, but will be later reported by Dr. Frederick Parker, Jr. and Dr. N. Paul Hudson and Miss Marion Lamb, of the Pathological Dept. Boston City Hospital.

#### *Diagnosis*

The clinical picture in this disease is dominated (1) by the acute onset with toxic symptoms, as chills, vomiting, malaise and headache, (2) the eruption, involving especially the extremities, of a blotchy somewhat morbilliform character with a tendency to petechiae and (3) by a multiple arthritis of varying but often severe degree.

It seems readily distinguishable from the ordinary epidemic diseases in this vicinity.

It differs from *erythema infectiosum* of Escherich in the rarity of face involvement and the absence of circinate and seriginous lesions. There was no erysipeloid appearance. The joint involvement also would serve to differentiate and also the blood cultures.

*Rheumatic fever* may be differentiated not only by the striking epidemic prevalence but by

the freedom from cardiac involvement, the uniformity of the eruption and the blood cultures.

*Influenza* seems hardly necessary to mention, being excluded by the relative infrequency of the cough, the marked joint involvement, the eruption and the absence of leucopenia.

*Erythema subitum* may be excluded by the persistent fever often recurrent and remittent, the arthritis and the absence of mononucleosis.

*Dengue* seems readily excluded from the time of year—(absence of mosquitoes), the well marked objective signs of inflammation of the joints and the blood cultures.

*Typhus* may be excluded by the epidemiologic evidence, the course, the prevalence of joint involvement and the rash distribution.

Blood samples have been obtained for Weil-Felix tests, and also for later precipitin tests.

The disease seems to come in the group of the

undulant fevers and most closely simulates *Malta fever*. The association with the milk supply, the arthritis, eruption, toxic symptoms and the irregular fever are similar. The absence of splenic enlargement and the absence of lymphocytosis as well as the blood cultures would seem to exclude it.

We have tentatively named the disease Epidemic Arthritic Erythema.

We are greatly indebted to Mr. Lennon of the Haverhill Board of Health for his ever ready assistance in studying the disease, to the members of the Board of Health and to the local physicians,—Drs. Cooney, Hardy, Hubbell, Keliher, Laskey, Livingston, Mindlin, Morris, Mysel, Nettle, O'Toole, Perkins, Pierce, Richardson, Stokes and Zelig, who very kindly referred to us their patients for study. Drs. Simpson, Stevens and Wheeler aided us with the clinical laboratory work.

## SOME ERRORS IN SURGICAL DIAGNOSIS\*

BY IRVING J. WALKER, M.D., F.A.C.S.

INASMUCH as the study of medicine will never be mathematically exact, one must always expect errors, both in the diagnosis and treatment of disease. As time has progressed, so likewise has the practice of medicine in its various phases. With so many new laboratory methods, and with physical findings checked up by operations, pathological examinations, and autopsies, errors in diagnosis are fast being minimized.

The following cases are cited to illustrate some of the pitfalls that await the diagnostician, and are offered in the way of instruction rather than as destructive criticism. Only such points in the history and physical examination are given as are relevant to the existing pathological conditions for which relief was sought.

**CASE I.** Male: Age 30 years. In May, 1920, consulted a dentist for bleeding from the gums on the left side of the jaw. Though a carious tooth was removed, the bleeding persisted. The dentist later curetted some of the exuberant tissue from the region from which the tooth had been extracted. Bleeding ceased for a few weeks, then returned. A gland was noticed under the lower jaw on the left side. A physician, recognizing the condition as carcinoma, referred the patient for surgical treatment. Bloc dissection of the left side of the neck and later resection of the jaw on the same side was done. Following this the patient had recurrence of the growth, necessitating several further painful operations and radium treatments. He succumbed to the disease in January, 1924.

The prognosis of carcinoma of the oral cavity under the most ideal conditions (those of early diagnosis and treatment) is none too good. Here, however, was a case deprived of this chance through omission of such a simple measure as biopsy of a small bit of tissue from the gums. The chance of cure was further lessened

by the curetting. Judging from this and similar cases, it would seem that perhaps in some dental schools not enough stress is laid upon the teaching of oral carcinoma.



PLATE I

**CASE II.** Male: Age 19 years. In 1919 noticed a "lump" about the size of a small marble beneath the left deltoid muscle. He consulted a physician, who apparently not realizing the possibilities gave the patient an ointment to rub on, with instructions "not to worry if the lump became larger." The patient, through ignorance, interpreted this advice too literally, and allowed the mass to grow until it was almost the size of a football, when he sought

\*Abstract of talk before the East Boston Medical Society on November 18, 1925.

surgical advice, on December 27th, 1921. X-rays (Plate I) showed osteogenic sarcoma of the humerus. Amputation of the arm at the shoulder joint followed. Recurrence in the scar in October, 1922, was removed. Since then there has been no further evidence of local or general recurrence.

Though the physician giving the advice was not too well informed as to the most likely pathological condition (some type of sarcoma), X-rays would have demonstrated it. The outcome of the case may not have been altered in this instance by such advice, thanks to the slow-growing nature of the tumor.

Tumors of the breast in the female past the age of 35 years should always be looked upon with suspicion as to the question of malignancy. In the first of the two cases following, this was not considered important enough even for biopsy.

**CASE III. Female: Age 49 years.** In March, 1921, noticed a tumor in the right breast. This was removed by a physician, under local anesthesia. No pathological examination was made. The tumor recurred a few months later, and was again removed. Still no biopsy. About March, 1922, the growth again appeared and nodules rapidly developed throughout the right breast and axilla. The patient then consulted another physician, who referred her for surgical treatment. On examination the whole of the right breast and axilla showed numerous carcinomatous nodules, with no ulceration of the skin. The case was deemed hopeless for cure by surgery. Radium was embedded throughout the breast and axilla and the patient later given X-ray treatment. There was a rapid diminution in the size of the nodules, which remained in a quiescent state until October, 1924, when they seemed to take on added growth, especially in the breast. Because of the probability of ulceration, the breast alone was amputated. Pathological examination showed adenocarcinoma. Since then patient has had further X-ray treatment, with no apparent enlargement of the remaining nodules, and with no extension to the lungs or spine as shown by X-rays.

In this instance, the removal of the tumor on the first occasion should have been followed at once by pathological examination and immediate amputation of the breast with axillary dissection. Considering the length of time since operation, and from study of the microscopic examination of the section, it is quite probable that the case would have resulted in a cure, or at least eight years relief, had it been adequately treated from the start.

**CASE IV. Female: Age 61 years.** In March, 1922, patient called the attention of a physician to a lump about the size of an egg in the right breast. The physician must have thought the tumor a non-malignant one, as no treatment was advised. When seen again one year later the tumor had increased somewhat in size, and the skin over it had ulcerated. An enlarged gland was felt in the axilla. Amputation of the breast with axillary dissection on March 3rd, 1923. Pathological examination showed adenocarcinoma, with metastases in the axilla. Patient was given X-ray treatment. In January, 1924, a metastatic nodule was found above the right clavicle. Radium was inserted into this with marked diminution in size but not absolute disappearance.

Patient at the present time is alive but undoubtedly has metastases in the lung.

Error in diagnosis in this case caused a delay of one year in operation and a corresponding lessened chance of cure.

At the cancer age in females, when in doubt as to the nature of a breast tumor, it is far safer to do a biopsy, followed at once, if necessary, by a radical breast operation, than to wait for the tumor itself to show changes.

**CASE V. Male: Age 38 years.** Questionable syphilis twelve years previous to present complaint. Repeated negative blood Wassermanns. About January, 1924, began to have attacks of intense pain which ran across the upper part of the abdomen. The pain came on at any time during the day or night. It was not related to food. No vomiting. Bismuth series negative. A physician, thinking the pain was due to chronic appendicitis, operated for the same in May, 1924. Following operation the pain persisted as previously. Physical examination in



PLATE II.

July, 1924, was essentially negative, as was a bismuth series. Blood Wassermann was negative, but spinal fluid Wassermann was positive. Patient was, of course, suffering from gastric crises. Anti-syphilitic treatment ended this.

Had the physician who operated gone one step further in ruling out syphilis by having a spinal fluid Wassermann, he would undoubtedly have spared the patient the operation for appendicitis.

**CASE VI. Male: Age 56 years.** Between the ages of 25 years and 50 years, was treated for gastric ulcer, with complete relief during the next five years up to December of 1921, since which time he has had return of gastric distress, belching of gas, and epigastric pain. Also, during the last two months,



patient showed increasing vomiting and marked loss of weight. During the last six months he has been treated by his physician with various medicines by mouth and variations in diet. When seen in July, 1922, it was quite evident that patient was suffering from some severe gastric disturbance, either ulcer, or, more probably, carcinoma. Bismuth series showed an extensive carcinoma involving the whole of the pyloric end of the stomach, with a 50% residue at six hours. At operation, July 24th, 1922, it was found possible to remove the lower half of the stomach and do a Polya operation. Patient was relieved for a time, but died of carcinoma in April, 1923.

Had a bismuth series been made when the patient was first seen by the physician, they undoubtedly would have disclosed early carcinoma. Operation at that time would have given a far better chance of cure.

CASE VII. Female: Age 58 years. Father died of pulmonary tuberculosis. At 20 years of age patient was operated on for what was apparently an iliopectus abscess. At 46 years a hysterectomy was done for uterine fibroid. For one year has had frequency of urination, pain over the bladder, and, at times, a high temperature associated with chills. Urine contained pus. She was treated for cystitis for one year. X-rayed on February 2nd, 1924, (Plate II). These showed a calcification, probably tubercular, of the right kidney and ureter, and a dense mass of tubercular glands below the kidney, also an old healed tubercular osteomyelitis of the left sacroiliac synchondrosis and some hypertrophic arthritis of the lumbar spine. Cystoscopic examination showed the bladder walls to be normal. A catheter could not be introduced into the right ureter more than one and one-half centimeters. The obstruction was probably due to the calcification of the ureter. Catheter passed to the region of the left kidney following which there was a steady flow of cloudy urine, indicating an infected hydronephrosis. Specimens of urine from the bladder and left kidney showed clumps of streptococci but no tubercle bacilli. Injection of sodium iodine into kidney pelvis revealed hydronephrosis of left kidney, which operation corroborated. A plastic operation was done between the ureter and the dilated pelvis of the kidney, also a nephrostomy. Patient has been entirely relieved of all urinary symptoms since that time.

The lesson to be learned in this instance is that many cases of cystitis are not primary in the bladder, but are secondary to some kidney lesion.

CASE VIII. Male: Age 8 years. Patient fell upon a bottle, causing an incised wound over the right knee. He was treated by a physician with iodine dressings for five days, at the end of which time he became so ill that surgical advice was sought. Examination showed a swollen and tender knee joint. Pressure on the patella caused pus to ooze from the wound. Temperature 103—pulse 130. There followed operations and months of hospital treatment for a septic knee joint. The patient recovered, but with marked deformity of the knee joint, which will result in a permanent disability.

CASE IX. Female: Age 9 years. Patient fell and struck a needle into the knee. Her mother stated that it went in about three-fourths of an inch. One week afterward the knee began to swell. Treated for the next week by a physician for ordinary synovitis. In spite of adequate treatment for this condition the knee continued to swell. The child be-

came gradually sicker. On examination the knee joint was found to be swollen, tender, and contained fluid. Temperature 101—pulse 110. In view of the nature of the injury, and the fact that knee was becoming worse rather than better, the diagnosis of a septic knee joint was made. Aspiration revealed pus. At operation, the joint was washed out with many liters of a 1-10,000 solution of corrosive sublimate, followed by salt solution. Wound closed without drainage. Patient has a normally functioning knee two years afterward.

Deep penetrating wounds about the knee joint, always potentially septic, should be considered as having communication with the knee joint until proven otherwise by immediate operation.

CASE X. Female: Age 31 years. Patient injured left knee in automobile accident. During the next six months was treated by two physicians and an osteopath for synovitis of the knee. No X-rays were taken. When examined in November, 1921, patient showed a marked limp and inability to extend the lower leg more than three-fourths normal. X-rays at this time showed a T fracture through and above the condyles of the femur, with marked backward displacement of the lower fragments. June 4th, 1923, osteotomy done through shaft of femur just above the fracture so that the articular surface was placed in a normal position rather than with backward displacement. Excellent functional result at the end of six months.

Lack of X-rays at the onset of this case caused the patient over two and one-half years of disability, a painful operation, and incidentally cost a certain physician a goodly amount of money in settlement.

CASE XI. Female: Age 54 years. Patient fell on the floor, injuring her right hip. She was given first aid treatment by a physician, and later treated by her family physician for a contusion of the hip. She was in bed two weeks, walked with crutches for two months, and following that walked with a cane. For two weeks previous to examination she has walked without the cane. Physical examination revealed limited motion of the right hip, some eversion of the foot, and about  $\frac{1}{4}$  inch shortening of the leg. X-rays showed an intracapsular fracture of the neck of the femur with impaction. Fortunately, the result in this case was fully as good as could have been expected under the best of treatment for the condition.

Another instance illustrating the advisability of X-rays for the protection of the physician as well as for the welfare of the patient. Since this case was referred by an insurance company for examination and report, there was no obligation on the part of the examiner to impart unnecessary information to the patient as regards her injury.

The above two cases illustrate the possibilities for recovery of verdicts by the patients for malpractice.

CASE XII. Female: Age 62 years. Patient is the mother of four children. Menopause at 45 years of age. During the past year she has had a watery uterine discharge, at times with blood. On two occasions the bleeding amounted to rather severe hemorrhages. She was treated for this trouble by her physician with various medicines, local applications, and douches, with no relief. Surgical advice was

sought. Diagnostic curettage revealed adeno-carcinoma of the fundus. Because of marked obesity, vaginal hysterectomy was done. Patient well six months later.

The outcome in this case may not have been seriously altered by the delay before operation, but certainly no good was accomplished.

Uterine bleeding occurring after the menopause should be most suggestive of carcinoma either of the cervix or fundus, and calls for investigation from a pathological standpoint.

CASE XIII. Male: Age 39 years. For three months has had constipation. During the last month has had attacks of abdominal cramps. He has lost 28 lbs. during the last four months. For ten weeks has passed considerable blood by rectum. A physician by inspection, but without rectal examination,

diagnosed the condition as hemorrhoids. Another physician, inserting the finger into the rectum, found an extensive carcinoma about two inches inside the anal opening and referred the case for surgical treatment. A few external tabs existed, but there was no hemorrhoidal condition that could account for the amount of bleeding that the patient complained of.

Bleeding from the rectum, while generally due to hemorrhoids, may be caused by new growth, which can be discovered only by the examining finger, the proctoscope, or, in instances where it is high, by a bismuth series combined if necessary with a bismuth enema.

Study of the above cases will demonstrate how easy it is at times, through omission of diagnostic measures, to come to faulty conclusions.

## DEVICES USEFUL IN SCHOOL CLINICS\*

BY C. M. KELLEY, M.D.

1. The devices are designed as practical aids to examiners in school clinics and their assistants, affording relief from a large part of the time-consuming calculations involved. The models represent standards already established and widely accepted, but adapted by graphic designs to facilitate analysis of the findings of the physical or mental examinations of school children. The so-called "Nutrition Calculator" supersedes a similar slide rule described in the *Journal of the American Medical Association*, February 10, 1923; Vol. 80, pp. 397 and 398.

### I. NUTRITION CALCULATOR

2. In this model the data of the height-weight-age tables, published by Bird T. Baldwin, Ph.D. and Thomas D. Wood, M.D., in the Supplement to the July, 1923, issue of *Mother and Child*, are represented by marks spaced in such a manner that percentage calculations may be made mechanically and rapidly. The standards for boys are indicated on the upper part of the slide rule by Scales A, B, C, and H; and those for girls, on the lower part by Scales A', B', C', and H'.

3. Scale D, on the slide, is a logarithmic scale graduated in percentages below and above zero (accentuated by the arrow). Minus values indicate underweight percentages and plus values, overweight percentages.

4. The corresponding fixed scale (C) represents weights in pounds, and is the basis for Scales B and A.

5. The height marks on Scale B are placed at the average weights for the respective heights. Thus, merely by setting the arrow at a given height mark on Scale B, it is placed at the average weight; and any deviations from this average may be read directly in percentage op-

posite the child's actual weight on Scale C. 6. The age factor is included by the use of Scale A in conjunction with Scale B. After setting the arrow at the height mark (Scale B), reset the arrow to the given age for that height (Scale A), thus obtaining the average weight for height and age. The deviation percentage is then read as already described. For practical purposes, percentages ranging between -10% and +20% may be considered satisfactory, but percentages outside this zone indicate that inquiry should be made into the causes of the deviations.

7. Scales H and H' are not used in the percentage calculations but are inserted for ready reference. With reference to Scales B and B', they represent average heights for the respective ages as given in the Baldwin-Wood tables.

8. The model is approximately 10 3/4 inches long and 3 3/4 inches wide.

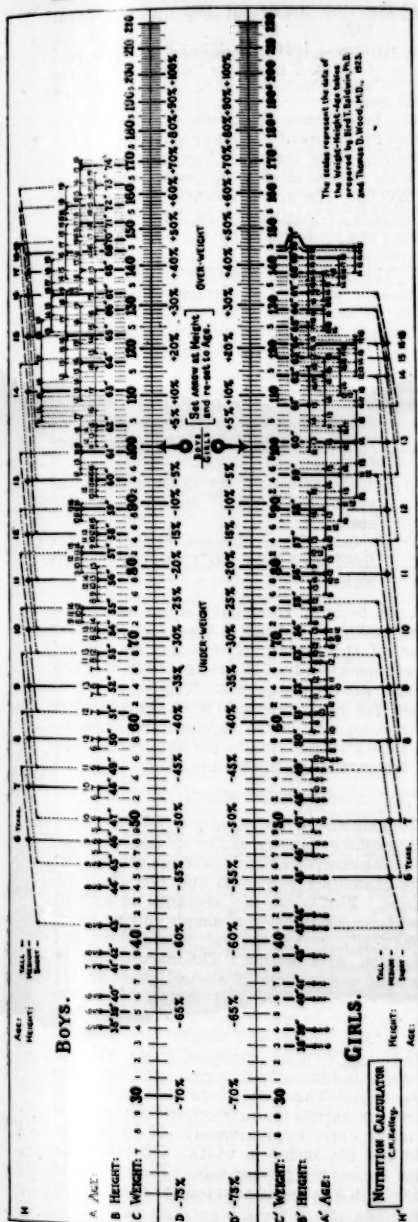
*Example:* A boy is 49 inches tall, 7 years of age, and weighs 45 pounds. Find in percentage his deviation from average weight.

- (a) Set the arrow (0) on Scale D at 49" on scale B;
- (b) As the given age, 7 yrs., lies within the age range for this height, no correction for age is necessary;
- (c) Opposite 45 lbs. (the actual weight) on Scale C, read "-18%" on Scale D, indicating that the boy is 18% underweight (disregarding the fraction).

*Example:* A girl, whose height is 57 inches and whose age is 10 years, weighs 107 pounds. Find the percentage of the deviation from average weight.

- (a) Set the arrow (0) on Scale D' at the given height, 57", on Scale B';
- (b) Reset the arrow to the age, 10 yrs. (Scale A') for this height; i. e., at 82 lbs.:

\*These devices are on sale. For further information refer to the author.



(c) Opposite the actual weight, 107 lbs., on Scale C', read "+30%" on Scale D', indicating that the girl is 30% overweight.

9. A half-inch fraction in the height may be represented in the calculation by setting the arrow half-way between the given-age mark for the whole number of inches of the given height and the given-age mark for the next higher whole number of inches.

**Example:** A boy, 46½ inches tall and 9 years of age, weighs 41 pounds. Find the percentage of his deviation from average weight.

- Set the arrow (Scale D) at 46" (Scale B); i.e., at 48 lbs. on Scale C:
- 9 yrs. (Scale A) for 46" is at this point. As 9 yrs. for 47" is at 50 lbs. (Scale C), advance the arrow half-way toward this point, thus setting it at 49 lbs.:
- Opposite the given weight, 41 lbs. (Scale C), read "-16%" on Scale D, neglecting the fraction.

10. It hardly needs to be stated that the numerical values represented by the weight standards or by the percentages must not be taken too literally, or that relative weight is the only factor to be considered in nutrition examinations. However, the expression of weight deviations in terms of percentages offers, for school clinic purposes, a practical and suggestive index of physical development; and successive percentage records of individual children reveal the rates of growth as compared with average. The model has been found helpful by school nurses, clerks, and other assistants in school health work, and its use has been readily mastered after practice in a few problems.

## II. I. Q. SLIDE RULE

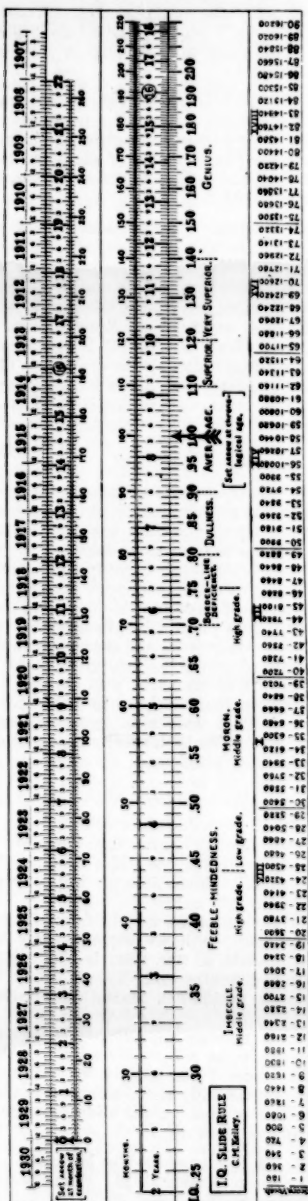
11. This is a double slide rule for simplifying calculations of (1) chronological age and (2) intelligence quotients, the slides being used independently. Its dimensions are approximately 10¾ inches by 2¾ inches.

12. Chronological age may be found by using the upper slide with its corresponding fixed scale. The scale on the slide is graduated in (1) years-and-months and (2) equivalent total months, thus avoiding a mental conversion of terms.

13. The fixed scale adjoining the upper slide is graduated in the reverse direction by months of specific years. Accordingly, by setting the arrow (0) on the slide at the month of examination, the age is read on the slide opposite the birth-month of the child.

**Example:** A boy, examined in May, 1925, was born in October, 1916. Find his chronological age.

(Slightly reduced.)



- (a) Set the arrow on the upper slide at 1925 : 5.
- (b) Opposite 1916 : 10 on the fixed scale, read "8 yrs. 7 mos." or "103 mos." on the slide.

14. Intelligence Quotients are readily calculated by means of the lower slide and its corresponding fixed scale. A logarithmic scale on this slide is graduated to represent I. Q.'s from .24 to 2.00. An arrow accentuates I. Q. 1.00. The grades of intelligence as described by Dr. Terman are represented by a graphic classification on the slide.

15. The fixed scale is graduated by (1) years-and-months and (2) equivalent total months. Simply by setting the arrow at the given chronological age, the I. Q. is found opposite the mental age. Fractions in the results are avoided by reading the nearest I. Q.

*Example:* A child, aged 8 7/12 years, is found to have a mental age of 61 months. Find the Intelligence Quotient.

- (a) Set the arrow on the lower slide at the given age, 8 yrs. 7 mos., on the fixed scale:
- (b) Opposite the mental age, 61 mos., on the fixed scale, read the I. Q. ".59" on the slide.

16. A table of vocabulary scores and equivalent vocabulary ratings is placed at the lower border of the device. The scores are divided into groups according to the age-levels at which they are rated as successes. This table is convenient for ready reference when the vocabulary test is given first in the psychometric examination, thus giving a clue to the appropriate age-level for continuing the examination.

### III. SCHOOL-CHILD PERSONALITY CHART

17. This chart is designed to afford a compact, graphic summary of the special investigation of the exceptional child for the convenience of the examining physician and the school authorities. The tables are arranged to provide for uniform distribution of simple entries, which automatically reveal mutual relationships and comparison with norms. The record may be made with a minimum of clerical effort by (1) minus or plus signs, where comparative notations are desired; (2) crosses where simple data (such as age, height, and weight) are to be indicated; and (3), in occasional items, abbreviated notes (as in indicating race, significant episodes, etc.). The chart is printed in blue to render the entries more conspicuous; and its dimensions are approximately 11 inches in height and 8½ inches in width. Directions for its use are on the reverse side. The horizontal spacing of the tables is adapted for typewriting (pica).

(Slightly reduced.)



18. Section A is devoted to data of identification of the case.  
19. Section B consists of (1) a table for scoring physical defects; and the net score is recorded and checked upon the Physical Rating table. A grade

**SECTION A. SCHOOL-CHILD PERSONALITY CHART** PREPARED BY C. M. KELLEY, M.D.

NAME: \_\_\_\_\_ REFERRED BY: \_\_\_\_\_ No.: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_ CLINIC: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BIRTH DATE: \_\_\_\_\_ SCHOOL: \_\_\_\_\_ GRADE: \_\_\_\_\_

**B. PHYSICAL EXAMINATION**

Defect	Speech	Vision	Hearing	Heart	Lungs	Stomach	Intestines	Neurology	Hygiene	Other Defects
1. Ht. - 40"										
2. Wt. - 100										
3. Ht. - 45"										
4. Wt. - 120										
5. Ht. - 50"										
6. Wt. - 140										
7. Ht. - 55"										
8. Wt. - 160										
9. Ht. - 60"										
10. Wt. - 180										

**C. FAMILY HISTORY ENVIRONMENT CONDUCT APTITUDES**

FAMILY HISTORY		ENVIRONMENT		CONDUCT		APTITUDES	
PATERNAL	MATERNAL	URBAN	RURAL	ASSERTION	GENEROUSITY	DETERMINATION	MECHANICAL
NORMAL		GOOD		TRUTHFULNESS		LITERARY	
RACE		FAIR		HONESTY		MUSICAL	
FINANCIAL CONDITION		POOR		TEMPER		ARTISTIC	
EDUCATION		BAD		SYMPATHY		DOMESTIC	
SOCIAL BEHAVIOR		HOME COOPERATION		OBEDIENCE		ATHLETIC	
HEALTH		PLAY		ATTENDANCE		SOCIAL	
MENTALITY		WORK		SEXUAL BEHAVIOR			

**D. CORRELATION OF INTELLIGENCE, KNOWLEDGE, AND SCHOOL TESTS**

**GROWTH** HEIGHT-WEIGHT-AGE

MALE: HEIGHT (Inches) \_\_\_\_\_ WEIGHT (Pounds) \_\_\_\_\_

FEMALE: HEIGHT (Inches) \_\_\_\_\_ WEIGHT (Pounds) \_\_\_\_\_

**SCHOOL TESTS**

GRADE	Kind	I	II	III	IV	V	VI	VII	VIII
1. READING									
2. ARITHMETIC									
3. SPELLING									
4. WRITING									
5. GEOGRAPHY									
6. LANGUAGE									

**Facial Expression**

Grade	Kind	I	II	III	IV	V	VI	VII	VIII
1. READING									
2. ARITHMETIC									
3. SPELLING									
4. WRITING									
5. GEOGRAPHY									
6. LANGUAGE									

**INTELLIGENCE - BINET TESTS**

Grade	Kind	I	II	III	IV	V	VI	VII	VIII
1. READING									
2. ARITHMETIC									
3. SPELLING									
4. WRITING									
5. GEOGRAPHY									
6. LANGUAGE									

**MENTAL AGE**

Grade	Kind	I	II	III	IV	V	VI	VII	VIII
1. READING									
2. ARITHMETIC									
3. SPELLING									
4. WRITING									
5. GEOGRAPHY									
6. LANGUAGE									

**EXAMINER:** \_\_\_\_\_

(Revised.)

ing physical defects; and (2) a Physical Rating letter is thus assigned, analogous to the grading in scholastic subjects, to incite the child to better his condition. Non-remediable defects should

be scored leniently but remediable conditions, rigidly. Such a scoring is quite arbitrary but experience has shown its practical usefulness. The numerical values obtained are not to be considered in the light of exact measurements, and the basic value of 50 is selected to avoid the possible implication of physical perfection that 100 might convey.

20. Section C. Essential facts in the family history, environment, conduct, and aptitudes may be represented on the chart by plus or minus signs, in most instances. Stress should be placed upon the aptitudes and inadequacies the child may show, as these traits are important in suggesting the course to pursue toward re-adjustment.

21. Section D contains scales and tables relating to growth, knowledge, the state of the sensorium, and intelligence. The age, height and weight, class-standing, and mental-age scales, together with the school tests and psychometric tests, are spaced upon the basis of age to provide graphic correlations in and between the various fields.

(a) The "Growth" scales are a representation of the height-weight-age tables prepared by Baldwin and Wood. The age scale is extended back to 1 year to permit recording the age at which any significant episode, such as disease or mental trauma, may have occurred. As the height and weight norms are spaced according to age, they are even less nearly absolute than if based upon height because of the wider deviations possible within normal limits; but they are useful for purposes of graphic comparison and indicate gross variations strikingly. The scales are used by marking crosses at the given age, height, and weight, according to sex; and by joining the crosses to form a triangle, if desired. The percentage of deviation from average weight is recorded at the right of the scales, and may be obtained rapidly by the use of the "Nutrition Calculator" (Device I.).

(b) The table entitled "School Tests" is a re-arrangement of the "Correlation of Chronological, Mental, and School Age" form prepared by Dr. Walter E. Fernald and used in the school clinics conducted by the Massachusetts Department of Mental Diseases. In the absence of the specific tests, this table may be filled out from the child's school record. The entries are made by plus and minus signs, and the highest successes in the various subjects may be joined to form a curve of academic proficiency.

(c) Observations regarding the child's sensorium and other characteristics are noted in the table at the right of the "School Tests" table.

(d) The lowest table in this section is headed by a triple scale for recording with crosses the child's school grade, chronological age, and mental age. The triangle formed by connecting these crosses provides a useful graph of the three-fold

relationship, disclosing at a glance a situation that would otherwise require extensive description.

(e) In the "Intelligence" table, each test of the Stanford-Binet series is represented by a space, placed according to its age-group and number. The spaces are labelled to facilitate analysis of the individual's performance. The entries are made by the customary plus and minus signs, and provide a graphic record of the distribution of successes and failures. Tests having the highest correlation with age (Terman) are represented by spaces with heavy borders and shaded corners. The number of months' credit for each year-level is entered at the bottom of each column, where the months credited for each success for the several year-levels are indicated by figures in parenthesis. The total credit is entered at "M. A.," at the right of the table. The chronological age is recorded at "C. A.," and the intelligence quotient calculated and entered at "I. Q." (Intelligence Quotients may be computed quickly and easily by the use of a specially designed slide rule, such as Device II.)

(f) A vertical line drawn through the two crosses indicating chronological age emphasizes any deviations from average in the three fields and completes the correlation graph.

22. Section E provides for the entry of brief notes summarizing the investigation, recommendations, and disposition made.

23. The chart is not intended to replace the detailed forms used by the school nurse, social worker, teacher, or other assistants. On the contrary, it serves as an index to the salient facts fully described in their reports.

(Device III.)

(Printed on the reverse side of the chart.)

#### SCHOOL-CHILD PERSONALITY CHART

C. M. KELLEY, M.D.

##### DIRECTIONS

*Section A.* This section is devoted to data for identification, and is self-explanatory.

*Section B. (a)* Score any physical defect according to its severity by marking a cross (X) in the appropriate space under the item involved; and enter the points of demerit in lowest space of the column.

SCORE NON-REMEDIALE DEFECTS LENIENTLY  
REMEDIALE CONDITIONS RIGIDLY.

Credit may be given for superior physical traits, for effort made toward correction, for co-operation in preventive measures (such as the Schick test and toxin-antitoxin treatment), or for faithful observance of the rules of hygiene.

Enter the net score in the lowest right-hand space.

(b) Check this score on the *Physical Rating*

scale, thus assigning a grade letter analogous to grading in scholastic subjects.

**Section C. (a) Family History.** Note the facts obtained by the social investigation in appropriate spaces, using abbreviations or, when possible, plus (+) or minus (—) signs. Represent individuals of the family by letters indicating sex and relationship.

**(b) Environment.** Mark with a cross (X) the nature of the neighborhood, rating the character of its influence. Unhygienic home conditions should be noted by abbreviations. Indicate the degree of home co-operation by a plus (+) or minus (—) sign. Note the child's favorite play, to the left in the assigned space if with younger children or to the right, if with older companions. Seclusiveness should be indicated by the entry of the word. Record any occupation the child may be engaged in, or indicate its absence by a zero (0).

**(c) Conduct.** Use plus (+) or minus (—) signs in the various items of this table, noting onanism or other sexual irregularities in the designated space. Similarly, truancy should be noted as such under "attendance."

**(d) Aptitudes.** A careful inquiry should be made into any special ability the child may possess and its presence indicated by a plus (+) sign. Exceptional ability may be represented by a double plus (++); and notable deficiencies should be indicated by minus (—) signs. These findings may prove the key to the child's re-adjustment.

**Section D. (a) Growth.** The age scale is the basis upon which all the scales in this section are spaced, thus affording a means for multiple graphic correlations. Any significant episode (such as the incidence of disease, delayed walking or talking, mental trauma, etc.) may be noted by a cross (X) at the age of its occurrence, and suitably labelled.

Mark a cross (X) at the child's present age, noting that the dots on this scale represent three-month intervals. Then mark a cross (X) at the child's height according to sex; and a third cross (X) at the child's weight. By connecting the three crosses, the triangle will indicate graphically any gross deviation from average height or weight for the given age. (NOTE: The norms indicated by these scales are even less nearly absolute than if spaced according to height, for the reason that when based upon age, wider deviations within the limits of normality are possible.)

Calculate the deviation from average weight for height and age in terms of percentage of that average. (Such percentages may be calculated rapidly and simply by the use of a specially designed slide rule—the "Nutrition Calculator," Kelley.) Record the percentage at "‰" near the right border of the chart; and from this value, give a rating under "Nutri-

tion" on the Physical Examination table (Section B. (a).)

**(b) School Tests.** Mark with plus (+) or minus (—) signs the results of the standardized "School Tests" used in the School Clinics of the Massachusetts Department of Mental Diseases; or, lacking these, make the entries from the child's school record. Join the highest pass marks in the various subjects to form a curve of scholastic proficiency.

**(c)** The table at the right of the School Tests table is for indicating characteristics observed during the examiner's contacts with the child. Plus (+) and minus (—) marks may be used.

**(d) Intelligence.** Each test of the Stanford-Binet series is represented on this table by a space placed according to year-group and number, and designated by an identifying term to facilitate analysis. Tests having the highest correlation with age (Terman) are represented by heavy borders and shaded corners. Make the entries by plus (+) or minus (—) signs in the appropriate spaces, thereby obtaining a distribution graph of successes and failures. Enter the number of months' credit for each year-level in the lowest space of each column, and the total months' credit at "M.A." at the right.

On the Grade scale, at the head of this table, mark a cross (X) at the child's present school grade. (Repeated grades may be indicated by circles drawn around the numerals.) Mark another cross (X) at the child's present age on the scale for Chronological Age; and a third cross (X) at the total months on the scale for Mental Age as credited in the psychometric examination. The triangle formed by connecting the three crosses presents a graph of the three-fold relationship between class-standing, chronological-age, and mental-age.

Record the chronological age in months at "C.A." near the right border; and calculate the Intelligence Quotient, which is to be recorded at "I.Q." (Intelligence Quotients may be calculated quickly and accurately by the use of a specially designed slide rule; cf. the "I.Q. Slide Rule," Kelley.)

A vertical line drawn through the two crosses indicating chronological age serves to emphasize any deviations from average in each of the three fields of Growth, Knowledge, and Intelligence; and completes the correlation chart.

**Section E. Comment.** In this section may be entered brief notes, such as the results of performance tests, a summary of the investigation, recommendations, and disposition of the case.

The completed charts provide a uniform method for comparison of a series of cases; and individually constitute compact and fairly comprehensive summaries of the various factors in a graphic form obtained with a minimum expenditure of time or clerical labor. The chart is not intended to replace the detailed forms used by the social worker, school nurse, teacher, psy-





were arranged according to school and grade. At the end of the year, they were numbered and filed.

26. In using the charts, a clerk or the teachers entered the names of all pupils in each room, listing them alphabetically in separate sex groups, and also their names and dates of birth. The charts were then assembled to constitute a directory.

27. At the time of examination, the date was entered after the name of each child examined, and an assistant entered the height, weight, percentage of the deviation from average weight (calculated at the time by the use of Device I), and any findings dictated by the examiner under the appropriate items, duplicating the record on the pupil's individual card. Any special feature in the child's situation was indicated by brief notes in the "Remarks" column; and when treatment was arranged for or provided, it was entered in the column for "Disposal."

28. The obvious disadvantages of such a de-

vice are the limitation of space and lack of provision for successive records. The entries are necessarily made by symbols or abbreviations, the fuller records being kept on the usual individual cards retained at the schools. To call the examiner's attention to conditions previously found, pencil entries may be made on the current charts before the examination. Records of previous years are made by page numbers.

29. All that is necessary to find a given record in this system is to know the pupil's name, school, and grade; and the method of record keeping has repeatedly proved its convenience when the individual record cards have not been available.

30. In conclusion, it seems fair to state that several nurses and other health workers have felt an initial aversion to the apparent technicality of the devices. In overcoming this feeling, however, they have found their use a saving of time and effort, and have been released for more constructive work than doing arithmetic.

## AN EASY METHOD OF ESTIMATING THE AMOUNT OF JAUNDICE BY MEANS OF THE BLOOD SERUM\*

BY WILLIAM P. MURPHY, M.D.

(From the Medical Clinic of the Peter Bent Brigham Hospital, Boston.)

We are all familiar with the various tests of renal function which are now in general use. It has taken many years and a considerable amount of work to establish the value of these tests and to cull out those which were not practical. Some of the proposed tests died a natural death because they were too complicated or too time consuming to justify their use. The ones which have persisted are for the most part simple and may be carried out with a minimum of technical skill and of apparatus.

Very much the same process of evolution has been going on in respect to tests for liver function. The problem here is perhaps more difficult because of the liver's many functions. Of the ten or fifteen methods which have been used to estimate the functional capacity of the biliary system, two types of test have stood out most prominently in the more recent literature. The first is based on the excretion of a dye substance through the liver. The second depends upon the estimation of the bile pigment present in the blood serum.

Of the dye tests used, that making use of the estimation of the amount of phenoltetrachlorophthalin retained in the blood after intravenous injection of a known amount of the dye has perhaps been most widely used. There are two obvious objections to the test as a practical aid in diagnosis which have become evident in a

series of cases studied in the Medical Clinic of the Peter Bent Brigham Hospital and which have appeared in the more recent reports on the test. In the first place although the test will show evidence of liver damage in the very obviously jaundiced cases, its results are often questionable in the border line cases where help is especially desired. Secondly, the method requires too much time and apparatus to be practical.

There have been two principal clinical methods utilized for the determination of bile pigment concentration or the degree of jaundice in the serum. Both of these methods are relatively simple. One, the van den Bergh<sup>1</sup> test, is based upon a color reaction resulting from the addition of Ehrlich's diazo reagent to serum containing bilirubin. Van den Bergh<sup>1</sup> believes that this test may not only determine quantitatively the amount of bilirubin present in the blood but may also decide whether the increased pigment is due to an obstructive jaundice or to increased blood destruction or hemolysis.

The other method of determining changes in the bilirubin content of the serum is the one which has particularly interested me and which I wish to discuss here. This is the so-called ieterus index test.

In 1917 Blankenhorn<sup>2</sup> suggested that it would be of clinical value to estimate the color of blood serum by diluting it with distilled water until it matched a constant color standard. Meul-

\*Read before the Suffolk District Medical Society, October 29, 1920.

engracht<sup>1</sup> later modified the procedure by using an apparatus similar to the Sahli hemoglobinometer for the dilution and a 1-10,000 solution of potassium dichromate for the standard. Maue<sup>2</sup> used the same standard but made the color comparison in an ordinary Dubosq colorimeter. The figure obtained by such a comparison is the icterus index of the serum. In order to further simplify the test and especially to do away with an expensive piece of apparatus such as the colorimeter we prepared a series of dilutions of potassium dichromate to correspond to the colorimetric "index" figures as follows:

1-10,000 — 1	1-500 — 20
1- 5,000 — 2	1-400 — 25
1- 2,000 — 5	1-200 — 50
1- 1,000 — 10	1-133 — 75
1- 666 — 15	1-100 — 100

These solutions are kept in small uniform test tubes of ten millimeters diameter.

The serum to be tested is obtained by drawing blood by simple venipuncture as for the Wassermann test. Five or six cubic centimeters are collected in a small test tube. This is allowed to stand at room temperature until the clot has started to retract and is then centrifugalized in order to separate the cells from the serum. One or two cubic centimeters of serum are then removed by means of a medicine dropper and placed in a test tube similar to the ones containing the standards. The tube of serum is then compared with the standards in a simple comparator. Direct daylight is used in making the comparison. The index figure of the standard which matches is considered the icterus index of the serum. Normal serum should correspond in color with the index standard of 5. Variations of from 4 to 6 may be considered normal.

It is of course important that the serum be clear in order to make the comparison with the standards accurately. Blood taken after a five or six hour fast or even better, an all night fast, will usually be free from the cloudiness caused by fat droplets unless a condition of lipemia exists. In order to avoid hemolysis it is important to have all of the apparatus which will come in contact with the blood dry. It is also advisable not to stir or pour the blood until after centrifugalization as this promotes hemolysis.

The changes in the color of the serum are due to the presence of varying amounts of bilirubin. Increases in the bilirubin of the blood (hyperbilirubinemia) are produced most commonly by the following circumstances:

1. Destruction of red blood cells. (Hemolytic processes.)
2. Obstruction in the liver itself.  
Cirrhosis, malignant disease, passive congestion.
3. Obstruction of the bile passages.  
Inflammation, tumor, stone.

The presence of stones in the gall bladder

does not necessarily hinder the excretion of bile and so may not cause jaundice.

Decreased amounts of bilirubin are found in cases having blood loss caused by other means than a hemolytic process. These are the cases of secondary anemia.

The color of normal serum is surprisingly constant, only a rare serum failing to conform to the normal index figure (5). It is this constancy in color of normal serum which makes the test of value. Variations in the bilirubin will cause a perceptible change in the color of the serum long before this can be recognized by inspection of the sclerae or skin. The test may very well be compared with a manometer, in which 5 is considered the normal or base line. Decreased production of bilirubin will allow the index to drop below 5 while increases in the bilirubin, either through increased production or through retention, will push the index up only to drop again as the cause for the increase is removed.

There are several possible clinical uses for the test. It is of value in differentiating between the primary and secondary anemias. In the latter (secondary) the index is usually below normal while in those cases of primary anemia in which blood destruction is occurring the index is increased. When blood destruction ceases, as may occur during the remissions of the disease, bilirubin is produced only in normal amounts and the index approaches normal.

It is possible to demonstrate the onset of jaundice before this can be definitely seen on inspection of the patient. This is of particular value to the surgeon attempting to determine the cause of attacks of abdominal pain. Meulengracht<sup>3</sup> has demonstrated that even transient obstruction of the bile ducts is often followed by an increased index for from 12 to 24 hours. An increased index in blood obtained during the attack of pain and later dropping to normal is therefore of great significance. No increase in the index occurs in association with the pain caused by an inflamed appendix, renal calculus or by either a duodenal or peptic ulcer unless there is disturbance in liver function at the same time. Conditions affecting the liver usually cause a less acute but more permanent rise in the bilirubin.

It affords a satisfactory means of following the course of a definitely jaundiced case. This is especially important in infectious jaundice where it is sometimes difficult to decide whether or not the jaundice is subsiding.

It is of value in following cases of syphilis under treatment with arsphenamine in order to avoid continuance of treatment after liver damage has been done.

By means of this test various degrees of jaundice may be demonstrated in many conditions other than those mentioned above, e. g. in cardiac insufficiency, in which jaundice is often

difficult to demonstrate, in hepatic cirrhosis, in malignant disease of the liver, in acute yellow atrophy and others. The test, however, does not help in differentiating between these various conditions except in an indirect way. As a rule, the higher indices are usually found in common duct obstruction from such causes as pancreatic tumor, or a stone in the common duct or in (catarrhal) infectious jaundice. The index figure in conditions involving the liver itself such as passive congestion, cirrhosis and malignancy is not usually so high.

#### CONCLUSIONS

The following conclusions seem justified from the present evidence available in regard to the icterus index test:

1. The test is simple and requires little apparatus or technical skill.
2. It is a reliable aid in differentiating between primary and secondary types of anemia.
3. Slight and transient jaundice such as may follow an acute gall-stone colic may be demonstrated in most instances.
4. The course of a jaundiced case may be followed more accurately than is possible by means of simple observation.
5. It may be possible to prevent serious liver upsets in patients under treatment with arsenamine, if treatment be discontinued following a rise in the icterus index.

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#### THE COMMONWEALTH FUND

THE Commonwealth Fund, a philanthropic foundation with offices at 1 East 57th Street, N. Y. City, announces an initial appropriation of \$350,000 to be expended for the construction of two hospitals in rural communities. This appropriation marks the beginning by the Fund of a new project which will involve the building of two such hospitals a year.

Farmville, Virginia, has been selected from among more than fifty applications as the location of the first of these hospitals, following a special study by Henry C. Wright, hospital consultant and former deputy commissioner of the New York City Department of Public Welfare. James Gamble Rogers and Henry C. Pelton. Associated, are preparing plans for this first unit.

On March first the Fund will establish a Division of Rural Hospitals under the direction of Mr. H. J. Southmayd, at present hospital consultant to the Cleveland Welfare Federation. The Department plans to receive applications

from rural communities under certain conditions, chief of which is that the Fund will in the case of approved applications contribute two-thirds of the cost of construction and equipment of the hospital, while the local community must contribute one-third. The community must also meet operating and maintenance costs.

Referring to this new project, the annual report of the Fund says:

"That rural communities, despite certain natural advantages, frequently afford a less satisfactory opportunity for healthful living than many of our cities; that the infant mortality rate in New York City, for example, is lower than for the state at large and that similar conditions exist elsewhere—these are established facts.

"The causes of such conditions are admittedly numerous and complex. Lack of a sufficient number of competent physicians in rural communities is undoubtedly a contributing factor which itself has many causes. In all the discussions of the subject, however, there appears one outstanding fact upon which all may agree. In many rural communities the physician finds little professional incentive either to establish himself or to remain. Lack of facilities with which to work, absence of stimulus and of means to improve both knowledge and technique drive many physicians to more promising and progressive locations.

"Among the most important needs in many such communities is that of a modern and well-equipped hospital. Lack of reasonably available hospital facilities often means retarded medical progress. It has meant also that the numerous allied activities which a good hospital stimulates and of which it is the center, such as out-patient clinics, education of the people along health lines, adequate control of communicable diseases and sanitary control generally have developed slowly and less effectively; and the value of the hospital as an educational force among the physicians, with all the attendant advantages to both physicians and community, has been greatly missed. It is hoped that this new work may help to improve conditions of rural medical practice."

The Commonwealth Fund, established in 1918 by Mrs. Stephen V. Harkness and chartered to carry on work "for the benefit of mankind," has just announced additional gifts from Mrs. Harkness which increase its total endowment to \$38,000,000. The annual income, amounting last year to \$1,339,000 is expended for a variety of educational, scientific, and humanitarian activities. The Fund has devoted special attention to child welfare work and its demonstration programs for the prevention of juvenile delinquency and for the promotion of child health have until now received the major share of its annual appropriations.

**Case Records**  
of the  
**Massachusetts General Hospital**

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN  
WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY

RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.  
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 12071

MEDICAL DEPARTMENT

A man of sixty-four entered November 3 complaining of diarrhea of over two years' duration. He was too ill to give a detailed history of the illness or any past history.

At the onset of the diarrhea he was in Florida. At this time he had some bloody stools. After the onset the diarrhea decreased somewhat, although he continued to have more than normally frequent movements. A year before admission he was examined at the Out-Patient Department of the Johns Hopkins Hospital; nothing was found. Since the onset he had had increasing weakness, recently very marked. He had been jaundiced for an indeterminate period. For the past three months his hands had grown noticeably darker. Recently the diarrhea had become worse and he had had some bloody stools. During the past three weeks weakness had been the most prominent symptom. For four days he had been too weak to get himself food. For three days he had had practically no water, and for two days he thought he had passed no urine.

Examination showed an emaciated, dehydrated man critically ill, with polydipsia and rapid breathing. The skin was dry, wrinkled and icteric. The hands and wrists were dark. The mucous membranes were rather pale. The sclerae were muddy and icteric. The upper teeth were false, the lower teeth in exceedingly bad condition. There was marked pyorrhea. The tongue was enlarged, very red and dry. The throat was injected and showed much exudate. The tonsils were enlarged and injected. The chest showed Harrison's groove. There was bronchial breathing at both bases. The apex impulse of the heart was not found. There was no enlargement to percussion. The sounds were of rather poor quality. There were no murmurs. The radials were palpable, the temporals and brachials tortuous. The blood pressure was 140/70-75. The abdomen was rigid. Palpation was unsatisfactory. The cervical, axillary, inguinal and epitrochlear glands were palpable. The extremities showed muscular wasting. Rectal examination showed bloody diarrhea, hemorrhoids, and a large ulcerating, firm, ring-like constriction about three inches

from the external sphincter. The pupils were small and contracted, unequal, but reacted to light and distance. The rest of the examination showed nothing of significance.

The temperature was 99.3° to 100.9°, the pulse 93 to 118, the respiration 20 to 32. There is no record of the urine. The patient was incontinent. The blood showed 8,200 leucocytes, 71 per cent. polynuclears, mostly young forms with few lobes or only slightly indented nuclei, hemoglobin 70 per cent., 4,260,000 reds, with some achromia and slight anisocytosis. The platelets were normal. The non-protein nitrogen was 145 mgm. A Wassermann was unsatisfactory because of bile. The stools showed macroscopic blood and pus, very strongly positive guaiac, no amebae or cysts.

The patient was given 1000 c.c. of saline subcutaneously and 500 c.c. of 10 per cent glucose intravenously the day of admission. Fluids were forced and he was given a soft solid diet and an alkaline mouth wash. He was kept comfortable with morphia in one-eighth grain doses. The next morning he was prostrated and had Cheyne-Stokes respiration and tracheal rales. He slowly sank, and the afternoon of November 4 died.

DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

Here we have a patient with a very unsatisfactory history, and therefore must not rest any portion of our diagnosis on the history alone. He has had a long-standing diarrhea, a diarrhea which a year before, however, on examination in a first-rate clinic showed nothing locally. I suppose they did a proctoscopy, examined the stools, and found nothing. He has been in a place where he might have got amebic dysentery. He is at an age when he might have diarrhea from cancer of the intestine. He has a jaundice which unless otherwise explained makes us fear that this is cancer with liver metastases. All these suggestions and fears should be in our minds as we begin the physical examination.

NOTES ON THE PHYSICAL EXAMINATION

1. Apparently he was drinking while he was examined, and could not be kept from drinking water at the time he was being examined. Otherwise examination could not show polydipsia.

2. We do not often hear of Harrison's rachitic groove at sixty-four, but there is no reason why we should not.

3. "Bronchial breathing at both bases" is a questionable observation. One hesitates in a person without any other sign or symptom of bronchopneumonia to believe that he has bronchial breathing at both bases. The record does not say anything about dullness at the bases or



any of the other physical signs that ordinarily go with bronchial breathing.

4. Some of his vessels show the arteriosclerosis that we expect at his age in almost anybody.

5. The glands were palpable, but it does not say that they were enlarged.

6. If we take the rectal examination at its face value there is not much more to be said. I do so take it.

7. There is slight secondary anemia.

8. The non-protein nitrogen is rather surprising. We have had nothing else in the case to make us think of a nitrogen retention, which that certainly is.

#### DIFFERENTIAL DIAGNOSIS

We see a man at the end of his life, presumably dying from cancer of the rectum. The interesting points here are the possible mistake about the diagnosis owing to his having a chronic diarrhea and coming from Florida. A person coming from a tropical country we say may have an amebic dysentery. It is not common, but there are cases from Florida as from all the Southern states. Presumably that was a separate illness. It is possible that he may have had a cancer of the rectum for two years, but not probable.

What else should be found? In quite a number of such cases no metastasis is found. But here with the presence of the jaundice I have no doubt that the reason they did not attempt operation is because they said, "There is metastasis in his liver or pancreas". Whether there are any metastases anywhere else I do not think we have any means of knowing.

I think there will be found arteriosclerosis and some enlargement of the heart, and very possibly some bronchopneumonia. I doubt if the bronchial breathing at both bases was due to the bronchopneumonia, if he has it. I doubt if it was there.

A PHYSICIAN: Do you ordinarily get dehydration from diarrhea caused by a lesion so low down?

DR. CABOT: I don't quite see why we should. I don't see why he had polydipsia. I had rather forgotten that high non-protein nitrogen. A man who has polydipsia, who is thirsty enough to have it and has a high non-protein nitrogen, even though we got no urine examination should be suspected of chronic nephritis, and that may account for it better than the cancer.

MISS PAINTER: He had been too weak to get himself food for four days, and had had practically no water for three days.

DR. CABOT: Presumably then it was that he was so weak, and having no one to look after him could get no water.

A PHYSICIAN: Could the rectal lesion be syphilitic?

DR. CABOT: I have never known such a consequence to luetic affections. The lesions have

been higher up and have not been ulcerated.

A PHYSICIAN: Could you think of pellagra with his dark hands?

DR. CABOT: That is a good suggestion,—his brown hands and sore tongue. Pellagra is a disease that I know so little about that I do not like to discuss it. We have had no necropsies that I remember showing it.

DR. RICHARDSON: Yes, we have had some.

DR. CABOT: I know nothing about it and should not want to try to discuss it. Of course any case that shows discoloration of the hands ought to be considered from that point of view.

A PHYSICIAN: If he did have bronchial breathing could you explain it by neoplastic metastases?

DR. CABOT: I don't think so. I do not remember a single case where we have ever identified that sign with metastases or where we have ever found any definite auscultatory symptoms of metastasis.

A PHYSICIAN: Would metastases in the adrenals give darkness to the hands?

DR. CABOT: That is possible. I should think it would be likely to give darkness somewhere else, but I know it is sometimes more marked in the hands than elsewhere in Addison's.

A PHYSICIAN: Do you think cancer in the pancreas would give his diabetes?

DR. CABOT: We have no reason to think he had diabetes, just polydipsia.

A PHYSICIAN: If this history is correct that could be explained by the three days during which he had practically no water.

A PHYSICIAN: Could you explain the high non-protein nitrogen and diarrhea on the basis of dehydration?

DR. CABOT: I do not remember any cases so shown.

A PHYSICIAN: Would you consider infusorial infection at all?

DR. CABOT: I should not think so. They did not find anything at all in his stools, and did find something else to account for his diarrhea.

Diagnosis: Cancer of the rectum, metastases in or near the liver, very possibly a bronchopneumonia but with no reason to think it is at the bases; very possibly a chronic nephritis or arteriosclerotic kidney; if so probably some arteriosclerosis elsewhere and some hypertrophy of the heart.

#### CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the rectum.

Terminal bronchopneumonia.

#### DR. RICHARD C. CABOT'S DIAGNOSIS

Carcinoma of the rectum with metastases in or near the liver.

Bronchopneumonia.

Chronic nephritis or arteriosclerotic kidney.

Arteriosclerosis.

## ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Carcinoma of the rectum with obstruction.  
Metastases in liver.

2. *Secondary or terminal lesions*

Icterus.  
Lobar pneumonia of left lung.  
Wet brain.

3. *Historical landmarks*

Slight arteriosclerosis.  
Chronic pleuritis.  
Obsolete tuberculosis of the superior lobe of the right lung.

DR. RICHARDSON: This man had a perfectly definitely adenocarcinoma of the rectum about eight centimeters above the anus. It extended along the wall for a length of three centimeters, producing considerable obstruction. There were extensive metastases in the liver. I could make out none in the mesenteric or retroperitoneal glands.

There was only slight arteriosclerosis. The heart, pericardium, and kidneys were negative. Head. There was some infiltration of the pia with thin pale fluid. The brain tissue was a little wet but otherwise negative.

The peritoneal cavity and appendix were negative. There was no pneumonia on the right, but the lower lobe of the left lung showed frank lobar pneumonia. There was a small amount of purulent fluid in the left pleural cavity.

## CASE 12072\*

## LARYNGOLOGICAL DEPARTMENT

A five-year-old boy was admitted to the Massachusetts Eye and Ear Infirmary July 10. His family history was good. He had measles at two and a half years, chickenpox at three, and pneumonia the year before admission. He had had tonsillitis only once. He was ill in bed for a week with "congestion of the lungs" (?). He had spasms of coughing and ran a temperature of 101°-103°. He recovered from this.

His present illness began with a "cold" and temperature. His mother said he had "grippe". Three weeks later he came down with tonsillitis, and this time was in bed eight days. He then ran about playing, but still coughing. On admission he still had cough, but no spasms of coughing, and had a temperature of 101°, pulse 112.

Examination showed a poorly nourished child

\*This case being one of a series from the Eye and Ear Infirmary to be published later by Dr. H. P. Mosher and Dr. D. Campbell Smyth is here reported by their permission.

with poor color and musculature, looking extremely sick. His expression was a little anxious. The teeth were very poor; many were carious. The gums were reddened, with white plaques. The fauces were injected. There were lateral chains of pea-like cervical glands, large submaxillary glands, and pea-like inguinals. The left lung showed increased resonance throughout. In the right lung was an area of flatness and dullness suggestive of consolidation or collapse of the lower and middle lobes. There were diminished breath sounds suggestive of fluid posteriorly and inferiorly. The respiration was 36. There was no compensatory expansion on the left. The apex beat of the heart was not visible or palpable, but was best heard in the center of the sternum at the level of the fifth interspace. The rate was 112, regular. The sounds were good. The right border was four or five centimeters from the right margin of the sternum. On the right side a wave-like contraction synchronous with the heart beat was seen in the third, fourth and fifth interspaces. The blood pressure was 88/58. The knee-jerks were very active.

X-ray (See Plate I) showed a tack in the right primary bronchus, with massive collapse of the right lower lobe.

July 11 bronchoscopy was done under ether. A five-millimeter Jackson bronchoscope was passed without difficulty. The right bronchus at about the location of the foreign body was found completely occluded. The foreign body was not seen. Considering that possibly the occlusion was due to organized granulations, one or two grasps straight ahead were made with the grasping forceps, but no foreign body was encountered. The bronchoscopy did not occupy over two minutes. The child was allowed to come out of ether for later bronchoscopy under fluoroscopic control. There were no untoward effects, and two days later the child was in good condition. Another X-ray showed the foreign body in the same location.

July 15 another bronchoscopy was done with the child under a horizontal fluoroscopic screen. During the next two weeks he was out in the sun every day and was followed closely by a pediatrician, who did everything possible to improve the child's condition.

July 28 another bronchoscopy was done, with the fluoroscopic screen placed on the side of the child. He was in good condition next day. There was slight spasmodic cough, and a slight amount of material was coughed up. From this time the child made an uneventful recovery. The temperature, which had been elevated from one to three degrees every afternoon for weeks, never again rose above normal. Frequent medical examinations of the chest showed the right middle and lower lobes functioning normally. X-rays taken at intervals of three to four weeks

showed the process in the lungs clearing up. X-rays taken in the middle of November showed the chest practically normal in appearance.

#### DISCUSSION

BY D. CAMPBELL SMYTH, M.D.

After the first operation I felt that removal should be attempted under the fluoroscope. We

The bronchoscopic tube was consistently seen to pass by, giving the impression that the tack was embedded in lung tissue rather than occluding the bronchus. Again the tack was not seen through the bronchoscope, and attempts by the roentgenologist to guide the laryngologist's forceps to the point were unavailing. When he informed the laryngologist that the forceps

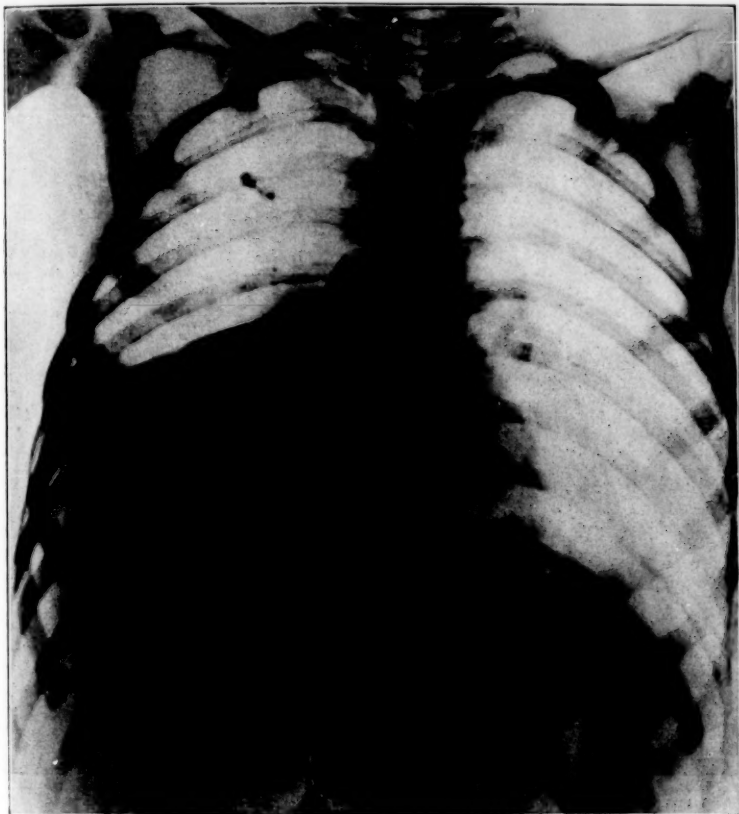


PLATE 1. Taken July 10. Shows a large foreign body apparently in the right main bronchus. Note the massive collapse of the right lower and middle lobes.

still clung to the opinion that the tack was in the right main bronchus.

#### SECOND OPERATION, JULY 15

Ether. The child was placed under a horizontal fluoroscope screen. The bronchoscope was again passed without difficulty. The tack could be plainly seen through the screen at all times.

were directly at the point of the tack the laryngologist would close the forceps, but with no results. The next instant the roentgenologist would inform the laryngologist that his forceps were half an inch beyond. It became quite evident that the laryngologist was working with the forceps in the wrong place to direct him to the foreign body. Feeling that the child might

receive too much X-ray, and wishing to avoid a burn, it was thought best to discontinue at this time.

During the operation the laryngologist had been directed always by the roentgenologist to keep the point of his bronchoscope to the right, and had therefore been exploring the right side of the bronchus. While the child was coming

(Plate II) showed the tack in the same position, and also showed, as was expected, that there was air in the right lower lobe.

#### FURTHER DISCUSSION

This case is particularly interesting to us in our department inasmuch as we were justified

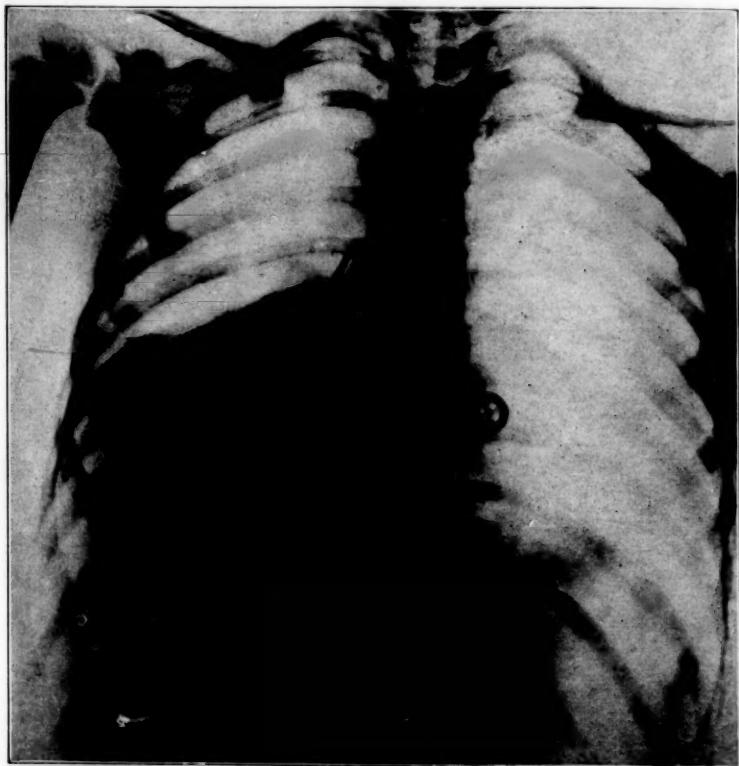


PLATE II. Taken July 15, after the second bronchoscopy. Note the scattered air in the lower lobe.

out of either the laryngologist decided to follow down the left side. To his surprise he suddenly got by the occluded area, which was opposite the bifurcation for the right middle lobe. Immediately upon getting down into the right lower lobe there was a gush of prune juice material such as would be expected from a drowned lung. There was also a considerable intake of air. After removing as much of this fluid as possible by suction the child was taken to the X-ray room and a plate was taken. This plate

entirely by the X-ray as to the location of the tack, and while the first two bronchoscopies may have seemed useless, each one helped very markedly in localizing the tack.

In order to demonstrate what I mean I will show a plate of a case which came in the very next day after this one was removed, with a tack in the right primary bronchus. So far as we can see here the tacks were in practically the same place. This tack proved to be where we expected the first to be, in the right main

bronchus about opposite the bifurcation. It was an ordinary carpet tack. The first was a large upholstery tack.

I should like to say a word about the anatomy of the bronchi. This plate (Plate III) was made by injecting the lungs with Wood's metal. The right main bronchus is more direct than the left. We have first the bronchus to the right

chus and dilating it can easily push the spur over. This is the first case we have seen where a foreign body caused a collapse of the right lower lobe. We expect collapse of the right middle lobe. We should expect a foreign body that was causing collapse of the lower lobe to be situated somewhere between the carina and the upper lobe bronchus. Lying directly on the

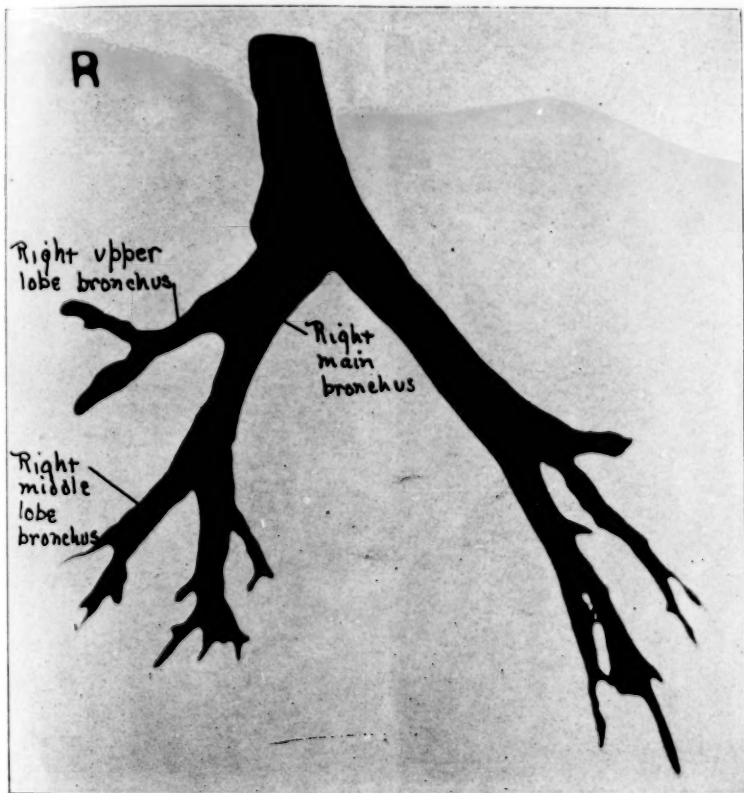


PLATE III. Wood's metal cast of the bronchial tree.

upper lobe, called the epiarterial bronchus. It usually comes off about at the carina of the bifurcation. About an inch and a half below the bronchus to the right upper lobe we have the right middle lobe bronchus. It varies a good deal in directness, comes off the ventral surface at an angle of ten to twenty degrees with the main bronchus. That leaves a long spur between the main and middle lobe bronchi. A foreign body getting into this middle lobe bron-

chus and below the right middle lobe bronchus we have the pulmonary artery, and that was one of the complications of this case when we realized where the foreign body was.

This (Plate IV) is the lateral view. This tack being in the right middle lobe bronchus the point of it should be down and the head of it should be up, because it is in there head first, and the middle lobe bronchus comes off ven-



trally. But the bronchus is evidently dilated, the spur pushed over, and the head dropped forward with the point facing upward. If in going down after this tack I were to grasp it near the head and pull, the point being upward

on his back the desired plane for working on the foreign body would be obtained.

THIRD OPERATION, JULY 28

Ether. The fluoroscopic screen was placed in



PLATE IV. Lateral view. Note the position of the tack. The head, which should be upward, has fallen backward because of the dilated bronchus.

it would probably perforate the bronchus. So I realized that on the next attempt it would be necessary to grasp the point of the foreign body.

I waited two weeks. The child showed no burn, and this time, having decided where the foreign body was, it was quite evident that with a vertical fluoroscopic screen and with the child

position on the side of the child. A five-millimeter Jackson bronchoscope was inserted in the right main bronchus. On reaching the location of the division of the bronchus into the right middle and lower bronchi considerable pus was encountered. This was the first time that pus had been seen in the bronchus. Considerable

time was consumed removing it by suction. The child's head was then reflected sharply backward and the bronchoscope thus directed to the region of the middle lobe opening. When the roentgenologist informed the laryngologist that the end of the instrument was near the point of the tack the latter withdrew the instrument about half an inch, in order to give the grasping forceps a better chance to pass directly into the bronchus opening to the middle lobe. A pair

amount of traction. Upon its removal the head of the tack was found to be covered with granulations.

#### FURTHER DISCUSSION

It is very difficult to see into the upper lobe bronchus. It is necessary to tilt the head sharply backward and work on the anterior surface of the main bronchus. The third attempt was the first time that pus was encountered in the lung.

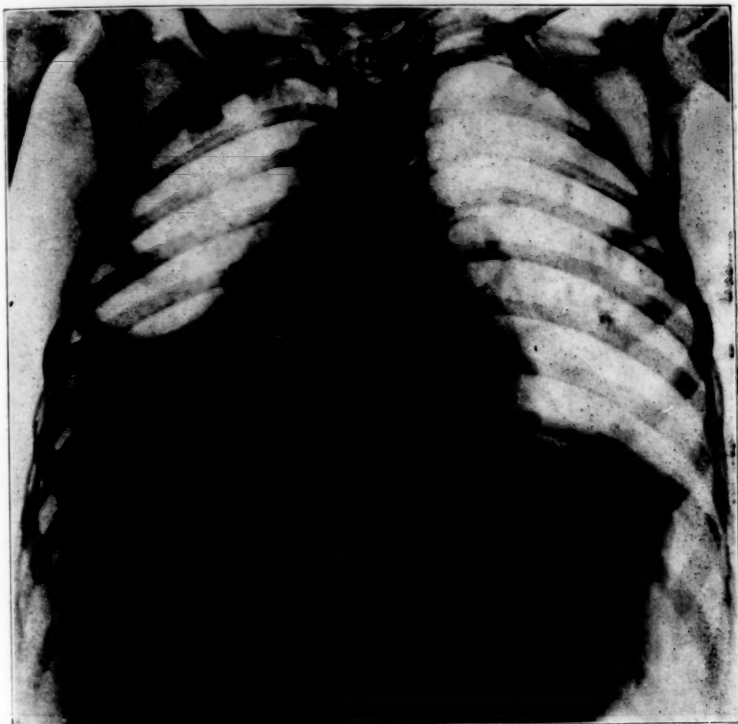


PLATE V. July 31, the first plate taken after the removal of the foreign body. Note the heart still pulled to the right. Some air entering the lower lobe.

of grasping forceps was now placed in position and passed through the tube. Directed by fluoroscopic control the laryngologist immediately seized the tack almost at its head. Very slight traction showed no movement of the foreign body, so still holding his grasp the laryngologist pushed it down gently for about a quarter of an inch. He then let go of his hold and withdrew his forceps until directed that he was opposite the point of the tack. A fresh grasp was then taken directly on the point of the foreign body and it was removed with a slight

The first bronchoscopy was dry. The second time I got the prune juice material. The third time I encountered pus the minute I entered the glottis.

The interesting points in this case are: (1) As in so many cases of foreign body, the negative history. There is no history of this child's having ever inhaled or swallowed a foreign body. I have seen several cases of children with so-called spasmodic croup where there was a foreign body in the larynx. There are a great many cases where we have a negative history. With

the opaque foreign body it is quite easy to make the diagnosis, but with the non-opaque bodies such as kernels of corn, beans, peanuts, etc., it requires an X-ray man who is used to the appearance of obstructive emphysema which these foreign bodies give in order to make the diagnosis.

(2) Another thing about this case was that

entirely by the fluoroscopist. It was very gratifying to be able to take hold of this foreign body and let go and take a second hold under his direction.

(5) The absence of pus: In these metallic foreign bodies it is not unusual to have very little involvement of the lung tissue. This is quite different from the non-opaque foreign

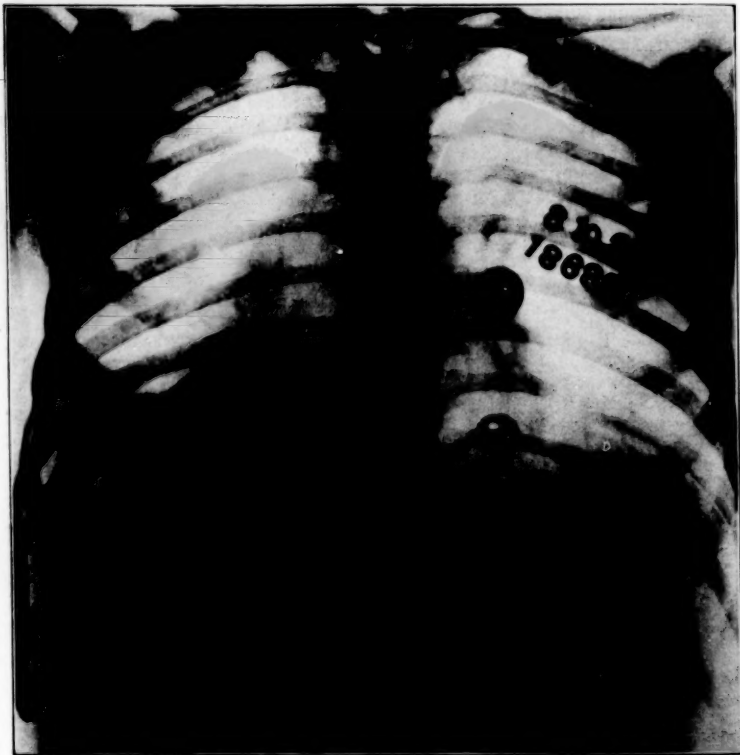


PLATE VI. August 10. Note the lung gradually clearing up. Also note the question of fibrosis or incomplete filling out of lung tissue.

the foreign body was in the right middle lobe bronchus, and yet caused massive collapse of the lower lobe. My explanation of that is the pushing over of this very long bronchial spur, for as I withdrew my bronchoscope I saw this main bronchus close as I came by that point.

(3) Three bronchoscopies were necessary in the case, but we learned something from each one.

(4) Another thing was the expert fluoroscopic control. A man who removes a foreign body with the aid of the fluoroscope must be guided

bodies, which give early reaction in the lung and a lot of pus.

(6) We have taken frequent X-ray plates of this case since the operation, showing the return of the lung to normal. In the last plates it is almost impossible to find anything wrong. The first plate after the removal (Plate V) still shows considerable collapse of the lung.

DR. HOLMES: It looks as if this one might have been taken at a little different phase of respiration, which might account for the difference.

DR. SMYTH: This (Plate VI) was taken some time later, probably about a month.

DR. HOLMES: There is some consolidation and some displacement of the heart to this side, and evidence of incomplete filling of the lung. In the next plate (Plate VII) there is very little—a little displacement of the heart and a little irregularity of the outline of the diaphragm.

Acidosis is often an early symptom in those foreign body cases.

MISS PAINTER: Do you think the illness that was called "congestion of the lungs" was really the beginning of this?

DR. SMYTH: That is the point. I think this foreign body was probably in there for a number of months, from the fact that there was so much

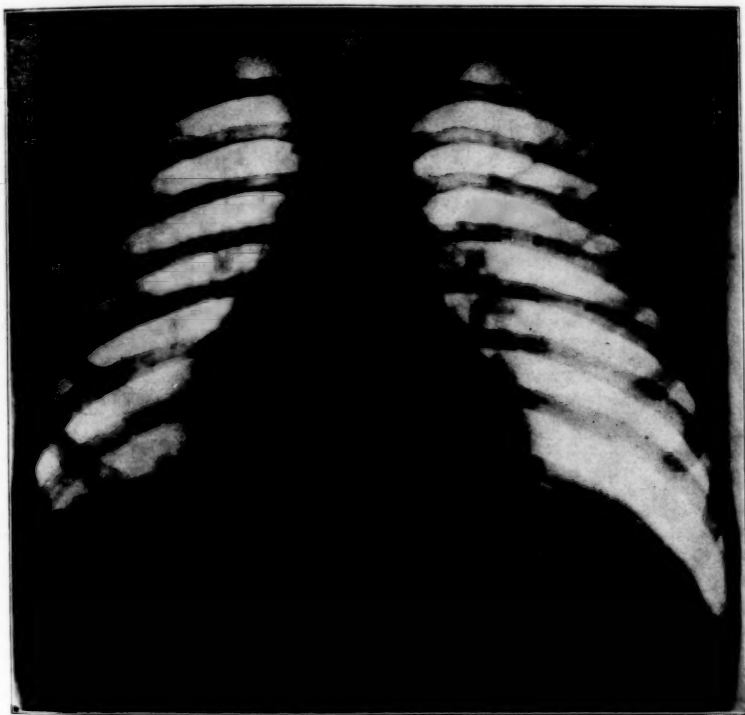


PLATE VII. September 22. This plate shows the process which was a question of fibrosis clearing up, leading us to believe that it was simply incomplete filling out of lung tissue.

regm. It is gradually filling out. The last plate (Plate VIII) is pretty nearly normal.

DR. SMYTH: It is very difficult to say whether it is fibrosis or incomplete expansion.

DR. HOLMES: It is more likely to be incomplete expansion with clearing up.

DR. CABOT: In view of the commonness of these foreign bodies without a history of swallowing anything the wrong way, in what sort of cases, with what sort of symptoms, should we especially make sure that an X-ray examination is made?

DR. SMYTH: In all cases of unaccounted-for cough with temperature, in children especially.

evidently quite organized granulating tissue about the head of the tack, and that the right middle bronchus was considerably dilated.

DR. HOLMES: What is the youngest case that you know of? How early in a child's life is it possible to happen?

DR. SMYTH: Safety pins have been swallowed in the first few weeks of life. For the past year we have been making a habit of sending safety pins in the lower end of the esophagus along, and removing those that are along the cricoid. Our feeling is that any safety pin that will pass the first constriction of the esophagus, namely the cricoid, will pass the pylorus. We were

right in that for a long time; then all of a sudden two safety pins straddled the pylorus. One of them perforated, was operated on and got well. The other simply straddled the pylorus and was also removed here. But out of a very large number of cases those were the only two that did that. The longest time in the stomach was fifty-eight hours. We feel we can by X-ray decide when it is unsafe to leave a foreign body, a safety-pin in the stomach. A safety-pin which is free in the stomach will give two or three shadows, but a safety-pin in the pylorus—we

one very striking one where a woman had a double-tooth crown in the bottom of the right bronchus that had been there six months. She was brought to the hospital with the following history. She had an attack of what was called pneumonia six months before, following tooth extraction by a dentist under ether. She finally got well, but had been losing weight steadily, raising copious amounts of pus, and had a definite family history of tuberculosis. The diagnosis was probable tuberculosis. She was sent to the City Hospital, where X-ray showed this

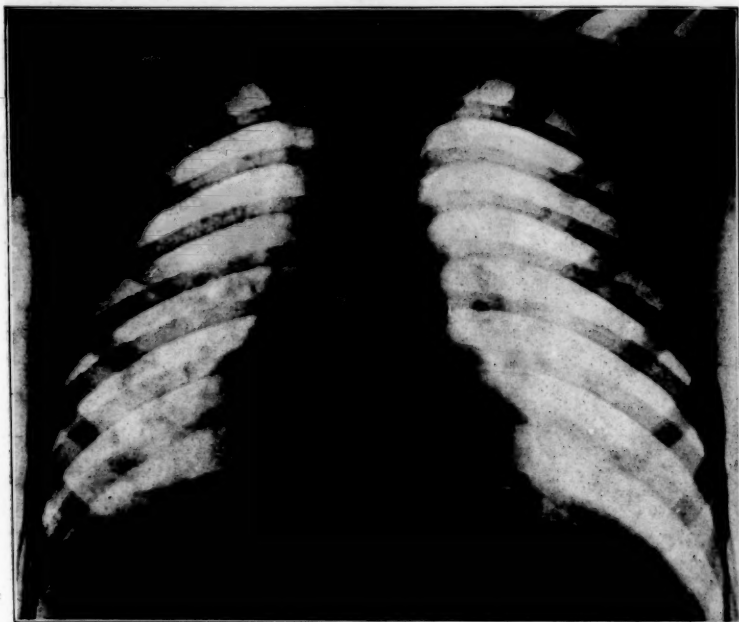


PLATE VIII. November 7. Shows the heart in nearly normal position and the lung tissue evidently normal in condition.

take X-rays every two or three hours—will show exactly the same position with repeated X-rays. In these two cases it was very striking. The high safety-pins we try to close and remove them that way.

DR. HOLMES: There is a case in the Children's Ward now in which the argument is whether or not it is a foreign body. The thing occurred very early, and someone suggested that he would not be likely to get a foreign body until he could pick up things.

DR. SMYTH: They put their hands in their months very early. And speaking again of negative history, it is surprising how often we have foreign bodies in the lungs even of adults without their knowledge. We have had several cases,

tooth. It is not very uncommon evidently to lose a tooth without suspecting it.

DR. HOLMES: I have seen it in people who work with nails in their mouths.

DR. SMYTH: The longest duration of foreign body in the lung I have ever seen was a screw-nail that had been in for forty-five years. The lung showed practically no reaction at all by X-ray.

DR. CABOT: Dr. Holmes, this dull area at the base is partly the heart pushed over; is the rest of it just the collapsed lung?

DR. HOLMES: The diaphragm comes up, the heart goes over, and the chest wall comes in, so probably only a small part is the actual collapsed lung.



Some of the old cases—one in particular that Dr. Sears got a necropsy on—had remained for a long time, and the lung was just a thin tongue. I suppose these that we see are not completely collapsed, but are filled with secretions.

DR. CABOT: The physical signs are very much like those of fluid except that the heart goes toward the affected side. We are beginning to recognize these a lot more after operation—things that we used to call something else.

DR. LINCOLN DAVIS: They were called pneumonia.

DR. SMYTH: What should a so-called "drowned lung" be like? I described the fluid, prune-juice material, that came through that bronchoscope when I got beyond the bifurcation of the bronchus. What would that be?

DR. CABOT: I suppose it was the exudate from the congested, collapsed lung. What would you say about that, Dr. Richardson?

DR. SMYTH: It was thin and rather brownish at the time I got down into the right lower lobe.

DR. RICHARDSON: You think you got into the lung?

DR. SMYTH: No, I got into the main bronchus.

DR. RICHARDSON: I should think it was possible it may have been collected material in the bronchus.

DR. HOLMES: That material develops bacteria very rapidly I believe. I suppose whatever organism predominated might have determined somewhat the character of the fluid.

DR. SMYTH: There is one slide that showed the air getting into the lower lobe through the bronchoscope. This other plate was just to show the right middle-lobe bronchus. It comes out with much more of an angle than usual.

DR. DAVIS: The air did not go into the middle lobe?

DR. SMYTH: No. The middle lobe overlaps.

DR. A. S. MACMILLAN: We could not differentiate the two lobes. There was in the original plate compensatory emphysema of the right upper lobe. It came down considerably further than we should otherwise expect it to.

Apparently after the removal of the tack the lung cleared up, but the lipiodol injection of the bronchus in such cases shows us that we never know what is in there until we inject the part. The heart is pulled over considerably still. The diaphragm is about in the normal position. There seems to be considerable thickening, so that I still think he might get bronchiectasis due to stricture of the bronchus at the point where the foreign body lodged. That is what happened in one of the cases here recently—definite stenosis of the upper bronchi and definite dilatation of the terminal bronchi below that.

This child has been perfectly well ever since the tack was extricated.

DR. SMYTH: You said three months ago that there was fibrosis there. Now, with the X-rays showing the lung steadily better, wouldn't you drop that idea of bronchiectasis finally in this case?

DR. MACMILLAN: If the heart comes over to its normal position and the fibrosis that shows there clears up. The tack was in there for quite a while. There must be some destruction of tissue. The tack was in there a long time before we saw the case.

DR. SMYTH: Well, we shall continue to have it X-rayed.

#### DIAGNOSIS

Foreign body in right middle lobe bronchus.

#### CASE 12073

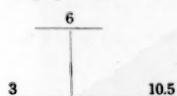
##### SOUTH MEDICAL DEPARTMENT

An automobile salesman forty-four years old entered the hospital January 25 for study. The general complaint was swelling of the face and hands. He had been married five years. His wife had never been pregnant. His past history showed nothing of significance. He smoked a hundred to a hundred and fifty cigarettes a day. He now used no alcohol. His best weight was 199 pounds, his present weight 185. He had had some loss during the past year. Twenty years before admission he had gonorrhea; also a chancre which lasted about two weeks, accompanied by a rash. He had some mercury and iodides. Twelve years later he heard of salvarsan and had three injections and some protio-dide pills. He was then pronounced cured.

Six months before admission, after using a poor cigarette holder, he had a sore on the dorsum of the tongue and later one on the side of the tongue. Both increased in size until eight weeks before admission he went to a syphilologist, who gave him five intravenous injections and mercury by mouth. After each injection he had a chill similar to those which followed the injections eight years earlier. Two weeks before admission and six days after the last of five injections of neosarsphenamin his face began to swell and became red and rigid. Two days later his mouth began to be sensitive and very dry. His voice became weak. He was put to bed on forced fluids, magnesium sulphate every morning and a soft solid diet. In a short time his hands became swollen, slightly red and scaled somewhat. He was given "intramine" a week before admission and again January 24. He passed a good deal of high colored urine until the day before admission, when the amount became scanty. His bowels had been very loose with cathartics. The day before admission he passed a little blood. On admission he was rather hoarse and had a little dry cough.

Examination showed a well nourished man with extensive weeping crusty lesions over the

face, neck and both arms. Over the chest back and front was punctate erythema, becoming less toward the abdomen. The tongue showed a deep fissured whitish indurated lesion on the edge. The throat was injected, the tonsils buried. The breath sounds were suppressed throughout the chest, the note hyperresonant. The heart sounds were distant, of fair quality. The apex impulse is not recorded. The percussion measurements were as shown in the diagram. The pulses and arteries were normal. The blood pressure was 116/110. The rest of the examination, including the pupils and reflexes, was normal.



Until February 24 the temperature was elevated, with daily afternoon rise to 99.2°-102°; only once below 98. After February 24 it was normal. The pulse was 72 to 112. The respirations were 19 to 38. The urine was cloudy at thirteen of twenty-two examinations, brown at eleven, high colored at one, specific gravity 1.004 to 1.030, the slightest possible trace to a slight trace of albumin at twenty, very rare to occasional leucocytes at fifteen, many at one, rare to occasional red blood cells at three. The amount was 12 to 60 ounces, with diuresis of 72 to 82 ounces February 18 and 19. The blood showed 22,400 to 26,000 leucocytes, 33 to 71 per cent. polynuclears, hemoglobin 80 per cent. The red count is not recorded. The non-protein nitrogen was 30 to 37.8 mgm. Sputum purulent, showed blood. Stool showed surface blood; guaiac strongly positive.

The orders were for specific precautions, forced fluids, low protein high carbohydrate diet; January 30 milk, egg nog with cream, orangeade, grape juice; February 4 salt free low protein high caloric diet. February 5 cream of tartar lemonade every two hours for four days. Fischer's solution<sup>1</sup> per rectum  $\frac{3}{4}$  vi every 2 hours. February 15 high caloric diet. Sedatives; veronal in five to ten grain doses almost daily to February 12. Morphia gr. 1/8 to 1/4 by mouth January 28 and 29. January 29 atropin sulphate gr. 1/150. January 28 digifolin gr. iii, January 29 gr. iss by mouth. Laxatives; magnesium sulphate  $\frac{3}{4}$  i in the morning. Carlsbad salts 5 ii, Russian oil  $\frac{3}{4}$  i in the evening. For cough: codein sulphate (dose gr. ss), chloroform lozenges. Albolin drops in the nostrils. Spray<sup>2</sup> p. r. n. Three grain ammonium chloride tablet t. i. d. Spray<sup>3</sup> t. i. d. for hoarseness. Syrup of hydriodic acid one tablespoonful in water after meals. For skin: Zinc oxide wash<sup>4</sup> left arm only; zinc oxide powder to rest of body. Yellow oxide of mercury ointment<sup>5</sup> inside lids. January 30 nosophen gr. xx. Zinc oxide ointment<sup>6</sup> to crusts on face. Powder only lesions on hands and feet; dust off powder on rest of body (use no water). Zinc oxide paste<sup>7</sup> half strength to face. Clean mouth with lemon juice and gly-

cerin. February 6 zinc oxide paste half strength to chest. February 8 zinc oxide powder to legs and feet. "Intramaine"<sup>8</sup> 3 c.c. February 13 "intramine"<sup>9</sup> 3 c.c. intramuscularly. Potassium iodide 10 drops, increase three drops a day to 30 drops.

<sup>1</sup>Fischer's solution: sodium chloride 14 gm., sodium carbonate 20 gm., water 1000 c.c.  
<sup>2</sup>Camphorae gr. ii, mentholi gr. v, iodi gr. i, petrolati liq. 5 i.  
<sup>3</sup>Camphorae gr. ii, mentholi gr. v, ol. eucalypti minimi v, liq. petrolati 5 i.  
<sup>4</sup>Zinci oxidi 5 ii, calaminii 5 i, glycerini 5 ii, phenolis minimi xx, aq. ad 5 viii.  
<sup>5</sup>Hydrargyri oxidi flavi gr. iv, petrolati 5 ii.  
<sup>6</sup>Zinci oxidi 5 ss, adipis 5 i.  
<sup>7</sup>Zinci oxidi 5 ss, amyli, petrolati aa 5 ss.

Under the powder treatment the lips became very dry and stiff. The patient coughed a great deal and raised some frothy white sputum. He did not seem to be at all toxic. By January 29 the swelling of the hands was still marked, and large flakes of skin resembling sections of oyster shells were coming off. There was some oozing on the face and instep, but the powder was keeping the skin very dry. January 30 there were many moist râles throughout the chest and breath changes in one area high in the right axilla. The mouth was dry and sticky, the voice husky. The skin on the body showed fine branny flakes. The powder treatment was discontinued except for very moist areas. It was thought desirable to get as much of the skin as possible functioning normally again. The powder was too drying. The zinc oxide paste, half strength, was used for the lips in a special effort to soften them.

Although the patient was said to have had albuminuria before this illness the urine now showed no more than a very slight trace of albumin. The urinary output was scanty until January 31 in spite of the fact that the patient drank freely. At that time he showed marked improvement. There was now a definite area of dullness in the right axilla as well as râles over both lungs. He raised a little reddish froth. The "intramine" was stopped. The temperature remained nearly normal. February 2 there was less sputum and it showed no more blood streaks. There was profuse peeling of the skin. The face was kept well lubricated.

Beginning February 3 the urine showed an increase of albumin and the patient became drowsy and somewhat dull mentally. The eyelids were slightly puffy and the ankles pitted on pressure. The non-protein nitrogen was 37.8. The right ear became deaf, later the left. An ear consultant found both canals plugged with the paste applied to the face and advised syringing with hot water. The temperature was subnormal. There seemed to be no less moisture in the lungs, but no demonstrable collection of fluid. The edema of the ankles and blood tinged sputum persisted. The forcing of fluids was stopped. A medical consultant advised alkaline treatment in the form of cream of tartar lemonade and rectal taps of Fischer's solution. Un-

der this treatment the urine became strongly alkaline and the output was increased. The drowsiness passed off and the hearing improved slightly, although the cerumen was not all out. There was still some puffiness of the face and marked redness of the skin. A medical consultant advised the service to be on the lookout for pneumonia. A throat consultant found a brawny rather indurated looking infiltration of both arytenoids very similar to the condition of the skin. The right cord was superficially ulcerated. The hemorrhage he thought probably came from below the larynx. That night there was some dullness in the left upper axilla. The temperature reached 102°. The next day the right upper chest behind showed dullness and bronchial breathing and there were numerous moist râles at both bases, although fewer than there were four days earlier. The urinary output and the urine were better. There was still some blood streaked sputum. The general condition improved.

By February 12 the skin was clearing very rapidly, coming out pink and clear from under large crusts to branny scales. The area most involved now was the lower legs. By the 16th the skin was almost clear and the urinary output was satisfactory. Partial deafness, hoarseness and sore throat still persisted. February 19 the urine showed many tailed and small round epithelial cells, a few leucocytes and rare red blood cells. The renal function was 45 per cent. The patient had very hard paroxysms of coughing. In the morning he raised a slight amount of blood-tinged frothy sputum; then on rising to a sitting position he raised a considerable amount of purulent sputum. The throat was sore and there were some enlarged submaxillary glands. By February 28 the ear consultant found the hearing of the right ear normal, that of the left chronically reduced to one foot. A surgical consultant advised excision and cauterization of the area on the left side of the tongue, believing it to be carcinoma.

March 1 the patient was discharged relieved of the arsphenamin dermatitis.

#### DISCUSSION

BY DR. C. MORTON SMITH

This case presents some interesting features. The patient had syphilis twenty years ago with inadequate treatment even for that time. Years later he developed a lesion on the tongue. Knowing his history, one naturally thinks of a late lesion of syphilis—a gumma. A strongly positive blood Wassermann seems to confirm that diagnosis. He has been an excessive smoker for years. He is at the cancer age. Malignancy of the tongue or throat often develops in old syphilitics who are smokers, and often valuable time is lost in trying to cure the malignancy with medicine instead of seeking surgical help at once.

Many of these cases still show a positive blood, therefore they should be treated for their syphilis, but the medical and surgical care should proceed together.

Two months before admission this patient consulted a syphilologist who recognized the dual condition. On account of business reasons the patient preferred the antisypilitic treatment first. He was given five injections of neoarsphenamin at weekly intervals, the first dose being 0.45 gm., the others 0.6 gm. each—certainly not excessive dosage for his weight. He had a certain amount of nausea and some chilliness after the injections, but nothing in any way severe.

The arsenical dermatitis in his case came on six days after the fifth injection—the majority occur after the third injection. I have never seen dermatitis follow the first injection in a person not sensitized to arsenic. Sensitization may come from arsenic in any form given in any way, and a patient with a history of arsenical dermatitis should receive no further arsenic in any form for four or five years at least.

At present there is no known means of detecting individuals who are likely to develop a dermatitis after intravenous arsenic. A certain number of patients after an injection of arsphenamin or its equivalent do show a slight erythematous eruption over wrists, ankles and sometimes about the eyes or forehead, of short duration, and accompanied by slight if any discomfort. If this condition is unheeded and another intravenous treatment given, dermatitis may follow. The above warning may make so slight an impression on the patient that it is brought out only after careful questioning when the dermatitis is present.

We have been most fortunate at the Massachusetts General Hospital with the large number of patients treated in that only a few cases of arsenical dermatitis have occurred. This small incidence is due I believe to the fact that patients are most carefully questioned as to any reaction of any sort following the previous injection, and all cases with any skin or other reaction are carefully observed until their condition is definitely known.

One of our patients who had taken his first full course of arsphenamin without difficulties, returned in three or four years with a severe ulcerating nodular syphilide on the face. During his absence he had taken Fowler's solution for a long time without our knowledge, but had taken none for two years. Following an injection of 0.45 neoarsphenamin he had a very severe attack of arsenical dermatitis.

Arsenic in considerable quantity has been recovered from the scales in the desquamative stage of the dermatitis. A special nurse for one of these patients developed about the eyes, axillae and at the bend of the elbows a dermatitis that had all the characteristics of an ar-

senical dermatitis, due no doubt to the dusty desquamation.

It is easy to see from the notes on the treatment of this case that there is no specific for arsenical dermatitis. Several drugs have been advocated. McDonaugh of London made high claims for his preparation known as "intramine" given intramuscularly. Its value is supposed to depend on the formation of colloidal sulphur, which aids elimination.

Soon after intramine came the claim for the intravenous use of thiosulphate of sodium, first used in France and introduced into this country by McBride and Dennie, recommended also for the treatment of poisoning by mercury as well as by arsenic.

Treatment consists of a course of six daily injections beginning with 0.3 gm. and increasing until a gram is given at the last two injections. Like "intramine," thiosulphate seemed to be of more service in our early cases, but of late it too seems less efficient, although we still use it. Our experience in the treatment of arsenical dermatitis is largely based on cases that have been admitted to our ward with this condition not produced in our clinic. Sulphur in daily doses of 5 ss to 5 i is favored by some syphilologists as an aid to elimination.

Nothing has yet appeared that takes the place of increased elimination by the bowels and kidneys from forced fluids and the use of moderate catharsis from magnesium sulphate given in the morning. Practically all the cases have had a normal urine when the dermatitis began. A drop in the renal output is a definite cause for anxiety. Alarming symptoms have not occurred where the intake and output of fluids has remained high. Edema if extensive requires a reduction in the intake. Rectal taps are of service, also subcutaneous injections of salt solution.

A sensation of tightness of the skin of the face and forehead, burning and some itching of the skin, are early symptoms. Itching is also a prominent feature during the desquamation period. Starch baths and mild alkaline lotions are often most soothing during the acute erythematous stage. Dry powder is more comfortable in some cases. When the skin is dry and fissured oily preparations should be used. Boric or zinc oxide ointments or a mild Lassars paste without salicylic acid are of value. The heart must be watched and sustained. Sedatives, veronal and the like, are often useful. A low protein and high carbohydrate diet is best. Bronchopneumonia of varying degrees is not uncommon and has caused the fatal termination in some cases.

In addition to the repeated desquamation—for many of these cases peel completely two or three times,—the nails are lost and sometimes all the hair. After several months the hair and nails are restored and the skin becomes nor-

mal. These cases not infrequently show a certain amount of jaundice during the early part of the attack, and one case that began as a dermatitis soon developed into a severe jaundice, the skin eruption not reaching the stage of desquamation.

Dermatitis may follow any of the arsphenamin preparations. It is said to be more liable to follow sulpharsphenamin. Dermatitis may occur in young children, running the same general course as in adults.

A PHYSICIAN: Is this in any way related to the so-called Herxheimer reaction, and is it possible to desensitize the patients before the three days?

DR. SMITH: I do not think it has any relation. As I understand it, Herxheimer comes on a few hours after the first injection, as an accentuation of the eruption, which gradually fades.

We may get an arsenical dermatitis after arsenic taken any way for anything. It occurred in some of the cases of chronic arsenical poisoning, if I remember correctly, reported in England a few years ago from arsenic in beer. I do not think there is any way of desensitizing the patient except by time, and that requires a very long period. So that if antisyphilitic treatment is needed, as it is in almost all these cases, it must be given as bismuth or mercury or iodine or something besides arsenic. We can desensitize so far as the nitritoid crises are concerned—the flushing, the cough, the perspiration, the feeling of tightness in the chest that comes on during an injection, appearing usually when about three-quarters of a decigram of the preparation has been injected. By giving one-tenth decigram and waiting twenty minutes, and then giving the balance of the injection, we have been able to accomplish a sort of anti-anaphylaxis procedure.

A PHYSICIAN: Is there any particular place where dermatitis comes first?

DR. SMITH: Usually around the eyes, the forehead, the forearms, over the dorsal surface of the feet and upon the lower extremities. That is where we look for the first signs.

I may say incidentally that this poor man with his very severe arsenical dermatitis would have been just as well off if he had not got well, because he simply lived to suffer untold agony with his cancer of the tongue. It was so far advanced that radium was of no real value and gave him a great deal of additional pain, and a total extirpation of the tongue and glands was out of the question. He lived less than a year from the time he first sought relief for the tongue lesion.

#### DIAGNOSIS

Late syphilis.  
Cancer of the tongue.  
Arsphenamin dermatitis.

# THE BOSTON Medical and Surgical Journal

Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

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SUBSCRIPTION TERMS: \$6.00 per year in advance, postage paid for the United States, \$7.50 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 126 Massachusetts Ave.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

## THE COMMUNICABLE DISEASES

The Health Department of the City of New York has been offering immunization against diphtheria to its school children for six years, and so far about one-third have accepted. It cannot be known what proportion of the remaining two-thirds have been immunized by private physicians or have neglected the precaution. Only about fifty thousand of the half million children of pre-school age have been immunized by the Department.

The deaths from diphtheria, the Department reports in its *Bulletin*, were 1,239 during 1919 with 14,014 cases, and 714 in 1924 with 9,687 cases. The striking decrease may with considerable reason be attributed to the toxin-antitoxin immunization. The year 1924, however, shows a rise over 1923, there having been but 8,050 cases in 1923, with 554 deaths; the case fatality in the two years is also worthy of mention, having been 6.88 in 1923 and 7.37 in 1924. This slight variation may be due to the cyclic character of all epidemic diseases, but at least it shows that continued improvement in the record has been slow.

Louis I. Harris, writing in the *Monthly Bulletin* of the Department for November, 1925, admits that their activities in this field have not

produced the anticipated striking results, and believes that the basic fallacy in the attack has been their preoccupation with children of school age. Two remedies present themselves; the first, to attempt to change the attitude of the public so that it will demand continuous health oversight; the second, to establish a more comprehensive and definitely organized method of dealing with children of pre-school age.

Measles, during the year 1924, showed a cyclic increase, there having been 33,561 cases as against 13,999 in 1923, ranking second to diphtheria as a cause of death, among the acute communicable diseases. Measles caused 506 deaths as against the 714 from diphtheria. Whooping cough held third place with 382; in order came next typhoid fever with 184, meningococcus meningitis with 104, infantile paralysis with 90, and scarlet fever with 80. The case fatality rate of scarlet fever dropped from 1.3 per cent. in 1923 to 0.95 per cent. in 1924, although the use of scarlet fever antitoxin must have been so slight that this drop can hardly be attributed to it, but rather to the familiar seasonal variation.

The employment of the Dick test is recommended and the active immunization of susceptible persons; this procedure, however, we believe, has not reached a stage of perfection where its general use is warranted or justified. It has so far been found to be too unreliable in its results, and what immunity it confers has been found to be too fleeting, as indicated by the test. Passive immunization of contacts with scarlet fever antitoxin, when they can be kept under observation, is also not recommended by this JOURNAL. Equally efficacious and less hazardous is it to delay administration of the serum until the first symptoms of the disease appear. By this conservatism many children will be spared the unpleasant results of an unnecessary injection of horse serum.

## THE COMPENSATION OF MEMBERS OF THE BOARD OF REGISTRATION IN MEDICINE

In this department of state activities this Commonwealth has profited by the loyalty of a considerable number of physicians. It is not uncommon for public spirited citizens to serve the state for little or no pay. Some of the highest types of service have been given by experts without any monetary consideration but the majority of the State's employees, among those who have had scientific training, have not been accorded financial recognition.

In this class physicians are prominent, and especially so, members of the Board of Registration in Medicine. The exacting duties of hearings and examinations impose the necessity of putting aside the regular routine of practice, the surrender of money far in excess



of the salary or per diem recompense and, in addition, anxiety about work at home often transferred to another, disappointing alike at times to the attending physician and his patient. The work of the board involves both mental and physical fatigue and very often much annoyance. These men must of necessity be well qualified in medicine and of a judicial temperament. They have been subjected to appeals for special favors submitted by politicians as well as the persons under study and not very rarely to insult and attempts at intimidation. Aside from the secretary, the members get the munificent sum of less than ten dollars per day.

The State has never given adequate recognition of the service rendered by members of this Board, for in addition to the inadequate compensation, many of its most important recommendations have not been adopted. The Board has been investigated and hampered but no evidence of dishonesty or mal-administration has ever been disclosed.

According to ideals of the profession, men will be found who will serve the State as they do individuals when duty calls. May it not be that the public is ready to take advantage of this generosity?

If there existed a medical trust as so often claimed by those who oppose the recommendations of the profession, there might be a strike, called with more reason than is apparent in some other departments of labor.

Fortunately the well informed and unprejudiced people of the State feel under obligation to the members of this Board and in the larger way will support these representatives of the medical profession. The report of the Board for 1924 is referred to in this issue. The original should be read by those who are interested in the registration of physicians.

#### CORRECTION IN LEGISLATIVE NOTES

To those familiar with the recent history of attempts to improve our vaccination laws the error in our issue of February 11th inst. under "Legislative Notes" must have caused consternation or hilarity. The possibility of hearing Dr. Woodward advocate Dr. Padelford's bill would have drawn a full house at least and would have given full reason for belief in the arrival of the millennium. If it had taken place we can think of no better illustration of the association of the lion and the lamb. With due humility we publish the correction in the Legislative Notes.

#### THIS WEEK'S ISSUE

Contains articles by the following named authors:

HAWES, JOHN B., 2nd., A.B.; M.D. Harvard Medical School 1903; President Boston Tuber-

culosis Association. His subject is "Heliotherapy." Page 281.

PLACE, EDWIN H., M.D. Harvard Medical School 1904; Clinical Professor of Pediatrics, Harvard Medical School; Physician-in-Chief, South Department, Boston City Hospital.

SUTTON, LEE E., M.D. Harvard Medical School 1921; First Assistant Physician, South Department Boston City Hospital; and

WILLNER, OTTO, M.D. University of Prague, Czechoslovakia, 1905; Clinical Professor of Medicine, Pekin Union Medical College. They write on "Erythema Arthriticum Epidemicum. Preliminary Report," page 285.

WALKER, IRVING J., A.B.; M.D. Harvard Medical School 1907; F.A.C.S.; Assistant in Surgery, Harvard Graduate School of Medicine; Visiting Surgeon, Boston City Hospital and Massachusetts Woman's Hospital. His subject is "Some Errors in Surgical Diagnosis." Page 287.

KELLEY, CLARENCE MOORE, A.B.; M.D. Harvard Medical School 1910; Formerly Assistant Physician, McLean Hospital, Waverley, Mass.; Medical Director Union School District, Concord, N. H.; Recently Senior Assistant Physician, Taunton State Hospital; Member of the Massachusetts Psychiatric Society, the N. E. Society of Psychiatry and American Psychiatric Association. His subject is, "Devices Useful in School Clinics." Page 290.

MURPHY, WILLIAM P., A.B.; M.D. Harvard Medical School 1920; Junior Assistant in Medicine, Peter Bent Brigham Hospital; Instructor in Medicine, Harvard Medical School. His subject is "An Easy Method of Estimating the Amount of Jaundice by Means of the Blood Serum." Page 297.

#### The Massachusetts Medical Society

#### REPORT OF THE DELEGATION OF THE MASSACHUSETTS MEDICAL SOCIETY TO THE MEETING OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT ATLANTIC CITY, MAY 25-29, 1925

BY H. G. STETSON, M.D., GREENFIELD, SENIOR DELEGATE\*

The Massachusetts Medical Society was represented at the meeting of the House of Delegates by four of its five accredited delegates, namely Messrs. Burnham, Mongan, Robey and Stetson. Dr. Lund was unable to be present at any of the meetings. Conforming to the

\*Printed in the official organ of the Society by vote of the Council, February 3, 1924

usual custom, after the preliminary work of opening was accomplished, came addresses by the speaker of the House of Delegates, Dr. F. C. Warnshuis, followed by Dr. William A. Pusey, the president of the Association. The address of the president-elect, Dr. W. D. Haggard, was deferred until Monday afternoon owing to his non arrival. On Monday morning also the House had the very great pleasure of listening to a short talk by Mr. J. Basil Hall, the president of the British Medical Association, and on Thursday afternoon to a short address by a former speaker of the House, later president of the Association, and now Secretary of the Interior in the cabinet of President Coolidge, Dr. Hubert Work of Colorado.

Dr. Warnshuis in his address deplored the hasty action often necessitated by the House in dealing with resolutions brought before it. He felt that these resolutions often call for careful and judicious study and the final decision is sometimes far reaching. To remedy this he made the suggestion that resolutions be placed in the hands of the delegates not less than thirty days previous to the meeting, in order that they may more thoroughly familiarize themselves with the business that is to come before them. He also called attention to the duties and responsibilities of delegates, and stated it as his conception of such duties that the delegate should not only convey to his state society a report of what has been enacted at the annual meetings of the Association, but that he should also impart to the District or County Societies what the Association is accomplishing and seeking, for the welfare of physicians as well as for the people. He also made a plea for greater publicity in medical knowledge, feeling strongly that such publicity in scientific medicine is the most effectual method of combating cults and quacks.

Dr. Pusey after reviewing briefly some impressions that had come to him in the two years in which he had held office, called particular attention to the responsibilities of the House of Delegates. He also felt that important measures coming up before the House of Delegates for action should be considered more carefully and particularly for a longer period of time by the reference committees before taking final action.

The address of Mr. Hall was largely one of greeting, but in his remarks he gave a brief history of some of the past troubles of the British Medical Association and urged the physicians of the United States to become more closely united by becoming members of the National Association, and stating his belief based upon the experience of the profession in England, that in no other way can the physicians of the country protect themselves, and incidentally protect the health of the people. It was one of the pleasures of the meeting for the New England delegation

in the House of Delegates to have Mr. Hall as its guest during one of the dinners held during the session.

Dr. Haggard in his address called attention to one or two of the faults in the Medical Practice Acts in some states, and also to the necessity for physicians to become thoroughly organized and to act intelligently and actively in legislative matters if they desired to protect themselves. If they did not do this, they had no one to blame but themselves if laws were enacted that were inimical to public health, and derogatory to the medical profession. He also called attention to the increasing frequency of suits for alleged malpractice against physicians and urged a careful study of the problem together with some recommendation for aiding those who are being unjustly sued. He also called attention to the relation of Workmen's Compensation Acts and physicians, and quoted extensively and in favor from the reports of the National Industrial Conference Board. He also called attention to the injustice of the medical care of the War Veterans' Act of 1924; the objectionable features of the bill were dwelt upon at some length, and he urged that physicians, both individually and through the American Medical Association, should make every effort to have the law modified.

In the Reference Committee Announcements, Massachusetts was represented upon two reference committees, Dr. Mongan on the Committee on Legislation and Public Relations, and Dr. Lund on the Committee on Reports of Officers.

The report of the Secretary was as usual a brief report of the work of the Secretary's office, together with some statistics relating to the number of members and Fellows and their location in the world. His figures stated that there were, at the time of the publication of the last edition of the American Medical Directory in January 1925, 148,644 physicians in the United States, 90,646 of whom were members of their County and State Societies, and 53,899 were Fellows of the American Medical Association. In Massachusetts at the beginning of 1925 there were 6,187 physicians registered in the State, 4,128 of whom were members of the State Society, and of this number 2,757 were directly affiliated with the American Medical Association. While it may be quite debatable whether it is entirely wise to increase the percentage of physicians in the membership of the State Society, it would seem to be without question, that a greater percentage of membership of the State Society should be included in the Fellowship of the national body. In the United States there are four states that have a larger membership of the total physicians in their state societies than Massachusetts, namely—Illinois, New York, Ohio and Pennsylvania, and five states that have a larger membership in the American Medical Association, namely—Cali-

fornia, Illinois, New York, Ohio and Pennsylvania. There are twenty-two state societies that have less than 1000 members, and of these, seventeen have less than 500, and nine have less than 200 members. The secretary believed that more interest and more activity had been taken in the work of the county society in the past year, and that many county societies are putting through programs of great constructive and instructive merit. The Secretary called attention to a Bulletin of the Association which now goes to 56,000 Fellows and which deals exclusively with activities in the association membership, stating that while it is of great value to the membership, it is not yet what it should be nor does it accomplish all that it should.

The trustees report a constant growth in the *Journal*, the paid circulation for 1924 being 81,257. \$418,737 was received from Fellowship Dues and Subscriptions, and \$614,084 from the sale of advertising space, a total of \$1,032,821 from these two items alone. A Spanish edition of the *Journal* is also printed, and this, on December 31, 1924, had a circulation of 2,599, and was being sent to thirty different countries. This edition is printed at a financial loss amounting, in 1924, to \$25,804, one half of which is paid by the Rockefeller Foundation. The trustees feel that notwithstanding this direct loss, the indirect benefits to the Association have been worth the undertaking. The Association also published in 1924 five special *Journals*. The net gain on these in 1924 amounted to \$778. The publication of the *Archives of Oto-Laryngology* was begun in January, 1925. The trustees state that the *Quarterly Cumulative Index* and the *American Medical Directory* are published at a loss. Both however are most useful publications and are probably worth indirectly to the Association all that it cost to carry them along. The publication of the lay medical journal *Hygeia*, begun in April 1923, has been continued, but at a loss for the year, of \$42,745. The trustees state that what this journal most needs is an increased circulation; that this will not only bring in increased returns directly, but increased circulation will bring more advertising of an acceptable character, and this also will increase the financial returns. On December 31, this journal had a subscription of 27,289, less than half of whom were physicians. It would seem as though this publication should be better supported by the medical profession than appears to be the case. The trustees report that the Bureau of Investigation, (formerly known as the Propaganda Department,) the Council on Pharmacy & Chemistry, the Therapeutic Research Committee, the Committee on Scientific Research and the Chemical Laboratory have continued their work as in the past. The Committee on Scientific Grants state that the first appropriation by the trustees in aid of Scientific Research

was made in 1903, and appropriations have been made annually since, except in 1915, 1916 and 1917. The amount appropriated each year has risen from \$500 at first to \$2000 for 1924. The money has been used for grants in aid of medical research. In all, seventy-five grants have been made in sums varying from \$50.00 to \$1000.00, in most instances being from \$200 to \$300. In these grants the money is being used for special assistance, supplies and equipment, and in no case is it given as a salary to the worker.

The trustees state that the dissemination by the Association, of printed matter for the education of the public is constantly increasing. These are issued under the direction of the Bureau of Health and Public Instruction and in 1924 323,182 pamphlets and leaflets were sent out. Continued effort has been made to promote periodic health examinations by the practicing physicians. The Council on Health and Public Instruction have prepared sample forms for such examinations, and there has been a steady demand for these by individual physicians, and also for the original report prepared by the Council and submitted to the House of Delegates at the St. Louis session. The trustees state that it is somewhat surprising that so few County Societies have taken interest in the report or in the work, although a few of them have done splendid work in this direction, and have succeeded in arousing a very active interest among their own members, and the public which they serve. More than 15,000 copies of the original report were distributed in 1924, and this has now been supplanted by a larger manual. The Council wish it to be understood that they are ready and willing at all times to aid State and County Medical Societies in preparing programs, and are prepared to furnish information, chart, posters, lantern slides, abstracts, etc., when called upon to do so.

The report of the Council on Medical Education and Hospitals was as usual a very complete and enlightening discussion of the matter at the present time, although not as long as some of the reports from this Council have been in the past. This report is altogether too complete to be abstracted and should be read by every one interested in present day Medical Education. It was presented this year by Dr. Ray Lyman Wilbur of San Francisco; in submitting the report he discussed briefly some of its more important points.

The report of the Judicial Council was one which brought forth considerable discussion that finally ended in the House going into Executive Session for its further discussion. The particular item which excited all of the discussion, was the subject of Periodic Health Examinations conducted by lay organizations. The Judicial Council in its report of last year, placed itself on record as opposed to this meth-

od of carrying on health examinations, and in this year's report they again took the same stand. The closing paragraph of their report seems to express more clearly their views regarding this method of health examination: "The Judicial Council desires to express again its firm conviction that the benefits of scientific medicine can not be adequately delivered to the individual through the medium of a third party, and that the communication of the results of physical examinations and the general advice with it should be associated and should go directly from the individual physician to his patient. As was stated in the report of the Council submitted at the Chicago session, the relation between the patient and the physician is an individual matter, and anything which disturbs this relationship is detrimental to the best interests of the patient." This report was followed by a vote of the House asking that the Judicial Council be asked to present to the House of Delegates any information, or proof, that will vindicate its position taken in the supplementary report presented at the Chicago Session. The requested report on information was presented to the House of Delegates on the day after the original report was submitted. In the discussion of this report the House went into a Committee of the Whole. Discussion lasted for nearly two hours and included a vast amount of correspondence and literature bearing upon the subject submitted by the chairman of the Council, Dr. Harris of Chicago. Upon reconvening, Dr. Harris of New York presented the following report—"That the Committee of the Whole recommends that the House of Delegates reaffirm confidence in the Judicial Council and that it endorse and approve their present report. It is the sense of this Committee of the Whole that every Fellow and Member of the American Medical Association should live up to the spirit of the report of the Judicial Council." The adoption was moved by Dr. Harris and was unanimously voted.

In the matter of new business something like twenty resolutions were offered for consideration. The resolution asking that the Trustees be urged to finance and push the work of the special committee appointed to investigate cosmetics said to contain irritating and dangerous chemicals, was referred to the Board of Trustees with power to act. Two or three minor changes were made in the Constitution and By-Laws. A resolution was introduced by Dr. Veeki of California urging that every member of the House of Delegates be appointed a Committee of one to visit, as an official representative of the American Medical Association, each County unit in his District during the year, for the purpose of informing these Societies as to impending unfavorable legislation and as to the progress and method of enacting laws favorable to the practice of medicine. It was brought out by Dr.

Veeki that not enough interest is taken in the affairs of the American Medical Association by the general practitioner; and if the best results are to be obtained by organized medicine a larger number of physicians must be more thoroughly familiar with the benefits to be derived by such organizations. This same principle was brought out by President Pusey, President-Elect Haggard, and Mr. Basil Hall of London, in their remarks before the House of Delegates. The resolution was referred to the Board of Trustees who reported back that the principle was sound and that they would do all they could to extend representation to constituent units of the Association. Resolutions directed toward further perfection of the Volstead Act were introduced as is usual at each annual session. This particular resolution had for its object the procurement of liquor in reasonably increased quantities, and with less difficulty, than is now the case, and directing that the Board of Trustees appoint a committee to cooperate with the Commissioner of Internal Revenue in the formulation of such regulations as may be necessary. The officers of the Association were asked to use their influence to abolish the war tax under the Harrison Narcotic Act; to obtain exemption from taxation on traveling expenses for attendance at meetings of medical societies, and on the necessary expense of Post-graduate study. A resolution calling for ad interim meetings of the House of Delegates referred to the Board of Trustees, was reported back by them, with the report that in their opinion it was impracticable because of the financial burden involved. The War Veterans Act was also the subject of a resolution calling for disapproval by the American Medical Association of that provision of law which furnishes government aid during illness to beneficiaries able to pay and whether such illness was the result of war service. This feature of the Veterans Act was the subject of much discussion and was very forcibly brought to the attention of the House of Delegates by the President-Elect Dr. Haggard.

At the election of officers Dr. Wendell C. Phillips was chosen President of the Association and Dr. Philip Marvell of Atlantic City was elected Vice-President. Four members of the Board of Trustees were elected. Dr. A. R. Mitchell of Nebraska to succeed himself. Dr. D. Chester Brown of Connecticut to succeed himself. Dr. E. H. Cary of Texas to succeed Dr. Oscar Dowling of Louisiana, and Dr. J. A. Pettet of Oregon to succeed Dr. W. T. Williamson (Deceased). Dr. Phillips has been one of the Trustees of the Association for many years and at one time was its chairman. By those who know him he is considered a very capable man and one who comes to the office with a very intimate knowledge of its duties and responsibilities.

Respectfully Submitted for the Delegates,  
H. G. STETSON.

## THE STUDY OF THE HEALTH DEPARTMENT BUDGET

UNQUESTIONABLE information bearing upon Dr. W. C. Woodward's recent visit to Boston reveals the fact that he was engaged to study the Health Department Budget by the finance commission. This is consistent with the latter body's decision to study the Health Department for Mayor Nichols and the departments of the city machinery.

The statement in the press that Dr. Woodward was brought on to investigate the Health Units was very much in error and apparently a surprise to Dr. Woodward himself. His investigation of the Units was only incidental to that of a study of all of the budgets of all of the branches of the Health Department Service.

The work done at the Health Units in Boston has received marked recognition of leaders in the field of Public Health from all over the world. This work is being extensively copied in New York and other cities. All who are responsible for the policies carried on at the Health Units in Boston and those who are in favor of further extension of this work join with others in awaiting Dr. Woodward's opinion of the value of the Health Unit as a decentralized institution best able to promote community health and welfare by organized team play.

## LEGISLATIVE NOTES

House Bill No. 1083 under petition of George Wigglesworth for the trustees of the Massachusetts General Hospital reads as follows:

An Act relative to the Construction of Hospitals in the City of Boston.

*Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:*

SECTION 1. Section one of chapter one hundred and sixty-three of the Special Acts of nineteen hundred and nineteen is hereby amended by striking out the first paragraph and substituting in place thereof the following:—

Every building in the city of Boston exceeding three stories or forty feet in height hereafter erected, altered or designed for use or occupation as a hospital shall be a first class building as defined in chapter five hundred and fifty of the acts of nineteen hundred and seven and the amendments thereof. Every such building shall be provided with not less than two fireproof enclosed stairways. The said stairways and such additional like stairways as the building commissioner may determine to be necessary shall be located with the approval of the commissioner so as to furnish a ready and unobstructed means of egress from all parts of the building. All said stairways and the stair landings shall have a clear width between hand rails and wall as the

commissioner may require, but not less than forty-four inches, and the stair landings shall be free from steps and winders. At least one of the stairways shall communicate with the roof of the building, and all the stairways shall have such exits to grade as the commissioner may require. Such smoke-proof doors shall be installed in the building as the commissioner may require.

SECTION 2. Said chapter one hundred and sixty-three is further amended by inserting after section two a new section as follows:—

Section . Said chapter one hundred and sixty-three by section six of said chapter five hundred and fifty shall act as a board of appeal under this act, and the members thereof shall receive therefor the same compensation as provided in said chapter five hundred and fifty. Any person aggrieved by a requirement of the commissioner under section one or two of this act, or by a refusal of the commissioner to issue a permit on account thereof, may appeal within ninety days to the board of appeal. Such person shall pay to the commissioner a fee of ten dollars before his appeal shall be heard by the board, and all such fees shall be deposited by the commissioner with the city collector at least once a week. The board after hearing an appeal shall affirm, annul or modify the requirement or refusal of the commissioner and notify the commissioner and the applicant thereof. If the requirement or refusal is affirmed, such requirement or refusal shall have full force and effect, and if it is annulled or modified, the commissioner shall amend the same and issue a permit in accordance with the decision of the board.

NOTE:—This is a copy of the bill as printed by the State but is evidently faulty in its construction.

THE matter of compulsory vaccination and the efforts to weaken the present law are presented in two bills.

Mr. Slater Washburn petitions for extending the vaccination requirements as set forth in House bill 386 which reads as follows:

"SECTION 1. Chapter seventy-six of the General Laws is hereby amended by striking out section fifteen and inserting in place thereof the following:—

SECTION 15. A minor under fourteen years of age who has not been vaccinated shall not be admitted to a public or private school except upon presentation of a certificate signed by a registered physician that the physician has, at the time of giving the certificate, personally examined the child and that he is of the opinion that the physical condition of the minor under fourteen years of age is such that his health will be endangered by vaccination. The said certificate shall state the reasons for the opinion of the physician who signs it, and shall be valid only for one year from the date thereof. A



minor under fourteen years of age who is a member of a household in which a persons is ill with smallpox, diphtheria, scarlet fever, measles or any other infectious or contagious disease declared by the department of public health to be dangerous to the public health, or of a household exposed to such contagion from another household as aforesaid, shall not attend any public or private school during such illness until the teacher of the school has been furnished with a certificate from the board of health of the city or town, or from the attending physician of such person, stating that the danger of conveying disease by the child had passed.

SECTION 2. This act shall not be construed to affect the rights of any foreigner admitted to this country under treaty stipulations which are inconsistent herewith."

Dr. S. B. Woodward of Worcester will present his arguments in favor of this measure and will be supported by Public Health authorities and physicians. All who have any doubt with respect to the wisdom of vaccination should hear Dr. Woodward who has facts and opinions of the most convincing nature which will be set forth in his appeal before the Public Health Committee.

The opposition will be based on House 694 under the petition of F. Mason Padelford. He will probably be supported by the Medical Liberty League, Inc. The text of Dr. Padelford's bill is as follows:

"SECTION 1. Any child who has reached the age at which attendance at school is permitted or required, and who is otherwise eligible for enrollment, who presents a written statement, signed by either a parent or guardian, which declares that such parent or guardian is opposed to vaccination, shall not, as a condition precedent to admission to the public schools, be required to submit to vaccination, and shall be allowed to attend the public schools, except at the time of a threatened or actual outbreak of smallpox, when the school board may temporarily debar such child from the public schools.

SECTION 2. This act shall take effect upon its passage."

The hearing on the two bills relating to vaccination will be held February 24.

The bill asking for the study of medical schools and medical education by the State Department of Education was given a hearing before the Joint Committee on Education, February 11.

The arguments in favor of the bill were presented by Dr. J. S. Stone for the Legislative Committee of the Massachusetts and the Massachusetts Homeopathic Medical Societies. Several osteopathic practitioners spoke in favor of

the bill which, if adopted and its provisions carried on by the Department of Education, would show weaknesses in medical education if such exist.

According to precedent this roused the ire of representatives of the College of Physicians and Surgeons and the Massachusetts College of Osteopathy and some friends of Middlesex College of Medicine and Surgery.

The present behavior of the opponents demonstrates that they do not want any study of the methods and equipment of the three schools of medicine the standing of which are in question. By a definite change of front they argued that this function should be conferred on the Board of Registration in Medicine whereas when the legislature has in the past been petitioned to grant similar powers to the Board of Registration opposition has been very pronounced. If the committee should see fit to change the bill giving this power to the Board of Registration, this would be acceptable to those who have drawn the bill. When the bill was being prepared the plan for reference to the Department of Education was adopted with the desire to relieve the opponents of suspicion that it was desired to benefit the medical profession or any one or group of medical schools. It is curious how nimble the opposition can be in changing its method of attack.

Now that the Board of Registration has been endorsed as the agent to carry on this work it would be very interesting to observe the course of a bill changed to meet the contentions in its journey through the House and Senate.

We wonder how the opponents would act.

House Bill 708 designed to recognize chiropractic treatment has been considered by the Committee and the report reads, Leave to withdraw. Since the report of a Committee is usually accepted it is probable that this matter is disposed of for this year.

Proponents of House bill 696 relating to the licensing of manicurists and masseurs have also been given leave to withdraw.

## MISCELLANY

### THE ANNUAL REPORT OF THE BOARD OF REGISTRATION IN MEDICINE

THE Board has registered during the year ending November 30, 1924, two hundred and eight physicians. Of this number six were registered upon certification by the National Board.

The number applying for registration through examination for the first time is 304. In addition, 78 who had failed in previous examinations were examined.

The following tabulation is based upon the results in the first examination of applicants during the year covered by this report:

Medical institution granting the degree	Num- ber reg- exam- ined	ber re- jected tered	Year of graduation of rejected applicants
Tafts .....	87	84	1923-24-24
Harvard .....	36	36	
Middlesex College of Medi- cine and Surgery .....	31	16	1921-22-22-23-23- 23-23-23-23-23- 23-23-24-24-24
St. Louis College of Physi- cians and Surgeons .....	20	1	1921-21-21-22-23- 23-23-23-23-23- 23-23-23-23-24- 24-24-24-24
Boston University School of Medicine .....	18	17	1924
Massachusetts College of Osteopathy .....	15	6	1922-23-23-23-23- 24-24-24-24
Foreign .....	36	17	1911-12-12-14-14- 15-16-17-17-17- 19-19-19-21-22- 22-23-23-24
Jefferson Medical College Physicians and Surgeons, Boston .....	7	6	1920
McGill .....	6	4	1923-24
Johns Hopkins .....	6	5	1916
College of Physicians and Surgeons of Columbia College .....	5	5	
Cornell University .....	4	4	
Chicago College of Oste- opathy .....	3	3	
Georgetown University .....	3	3	
American School of Oste- opathy .....	3	3	
University of Vermont .....	3	2	
University of Pennsylvani- a .....	2	2	
Philadelphia College of Osteopathy .....	2	1	1923
Chicago Medical College .....	2	1	1924
Bowdoin .....	2	2	
Vanderbilt Medical College .....	2	1	1923
Yale .....	1	1	
Drake Medical College .....	1	1	
University of Virginia .....	1	1	
New York Homeopathic Medical College and Hospital .....	1	1	
Detroit College of Medi- cine and Surgery .....	1	1	
University of Buffalo .....	1	1	
Baltimore Medical College .....	1	1	
Rush Medical College .....	1	1	
Medical Evangelists .....	1	1	
Moharry Medical .....	1	1	
University of Tennessee .....	1	1	
Emory University .....	1	1	
Loyola University .....	1	1	
University of Iowa .....	1	1	
Indiana University .....	1	1	
A. T. Still College of Os- teopathy .....	1	1	
Woman's Medical College, Philadelphia .....	1	1	
George Washington Uni- versity .....	1	1	
Hahnemann Medical, Chi- cago .....	1	1	
Northwestern University .....	1	1	
Syracuse University .....	1	1	

The Board asks that the salaries of its mem-  
bers be increased because of the added time re-

quired as compared with that given in the early  
history of this Board.

Thirty-three days have been given to the  
work of the Board in actual sessions during the  
year. Nineteen hearings have been conducted,  
seven certificates of registration have been can-  
celled. Several conferences have been held  
with graduates of the St. Louis College of Physi-  
cians and Surgeons and the Kansas City Col-  
lege of Medicine and Surgery for careful con-  
sideration of the credentials submitted.

In addition to its work in examining phys-  
icians, conducting conferences and hearings,  
the Board has registered nineteen chiroprodists.

## RECENT DEATH

**McGANN**—DR. JOHN HENRY MCGANN died at the  
Framingham Hospital of septicemia, February 7,  
1926, aged 50.

He was a native of Natick, a student at Boston  
College and a graduate of Harvard Medical School  
in the class of 1898. He had practiced in Framing-  
ham for 28 years and was a member of Framingham  
Aerie, F. O. E. He is survived by a son and a daugh-  
ter.

## OBITUARIES

### THE PASSING OF THE FAMILY PHYSICIAN

#### A TRIBUTE TO DR. HENRY EHRLICH

THE family physician is a noble figure in our  
community life. He has ever made a romantic  
appeal to the novelist, the dramatist and the  
poet. His activities constitute a life of sacrifi-  
ce and service. He is a servant to his fellow  
men in their direst moments of need and dis-  
tress, and as such he is at their call day and  
night, holidays and holy days. He is coun-  
selor as well as healer, teacher as well as  
preacher.

Such was the life and character of Dr. Henry  
Ehrlich who died Friday, February 5, 1926,  
after a brief illness, following an acute heart  
attack brought on by the toil of his labors. He  
is mourned and missed by legions, who learned  
to depend upon his skill and experience and  
to trust his judgment in thirty-seven years of  
a busy practice, during which he ministered to  
the ills of others. Dr. Ehrlich might well  
have been the type glorified by Ian Maclaren  
in his immortal story, "A Doctor of the Old  
School." He was calm, brave and sympathetic,  
and endowed by nature as one of her noble-  
men. He carried on the best traditions of  
the medical profession.

Dr. Ehrlich was a keen diagnostician and an  
expert therapist. Despite his busy prac-  
tice, he had time to keep informed of the ever  
increasing discoveries of scientific progress. He  
was always alert and forward-looking in the use  
of new revelations of science which came with

such extraordinary rapidity during his lifetime; in fact, the practice of medicine almost revolutionized itself since he graduated from Harvard Medical School in 1886. Dr. Ehrlich had that rarest of all qualities, sound judgment, by which he was able to winnow the wheat from the chaff. He was not carried off by fads and fancies. His practice of the art of medicine was based on the firm foundations of science. He was not only master of his profession but master of himself, and was a patient exemplar of that rare quality extolled by Osler in his classic essay "Aequanimitas."

Dr. Ehrlich's many patients frequently testified to the fact that they felt better for his presence. He cheered many a sickroom and brought comfort to many an harassed soul. His kindly smile was especially in evidence in the most difficult situations. His patients were his friends. His was a life of consecration to service.

We look with concern to the passing of the family doctor so ably and nobly represented by Dr. Ehrlich. There is greater need now than ever for the general practitioner of the type represented by him. He dignified the profession, made the world better for having lived in it, and gave at least one answer to the question, "Who is the happy warrior?"

Speak history—who are Life's Victors?

Unroll thy long annals and say;

Are they those whom the world calls the victors  
Who won the success of the day?

MILTON J. ROSENAU.

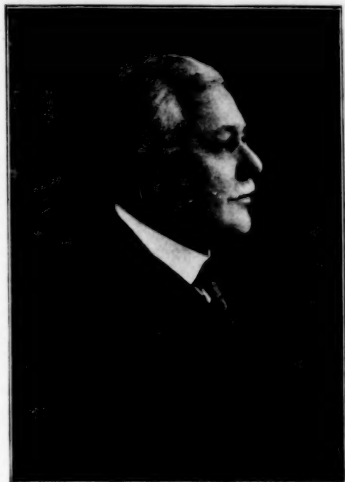
#### DR. HENRY CRAIN TINKHAM

DR. HENRY CRAIN TINKHAM, Dean and Professor of Clinical Surgery in the University of Vermont College of Medicine, died Dec. 6th, 1925, of cerebral hemorrhage.

Dr. Tinkham was born on a farm in Brown-ington, Vt., Dec. 7th, 1856. In 1880 he entered the University of Vermont College of Medicine, from which he was graduated with the degree of M.D. in 1883. He was Demonstrator of Anatomy from 1884 to 1894, Professor of Anatomy from 1894 to 1914 and Professor of Clinical Surgery from 1914 until his death. He was made Attending Surgeon to the Mary Fletcher Hospital in 1897 and Consulting Surgeon to the Fanny Allen and De Goesbriand Hospitals at the opening of those institutions. These hospital positions he held as long as he lived, as he did the office of Dean of the College of Medicine, to which he was elected in 1898.

It is not too much to say that it is to the energy, foresight and resourcefulness of Dean Tinkham that the College owes its present existence. In 1903, when the College building was destroyed by fire, he was so efficient in providing ways and means that places where the College work could be temporarily carried on were

found in the Mary Fletcher Hospital, the University buildings and in halls and vacant houses elsewhere in Burlington; so that it was *only three days* before everything was running normally again. When it came to the question of rebuilding, the College was without funds or endowment worth mentioning, but owing to Dean Tinkham's vigorous advocacy of the erec-



tion of a building adequate to the demands of modern medical education, the University Trustees became convinced of the necessity of the step. At the Commencement of 1903, a few months after the fire, the corner stone of such a building was laid and in another year the completed structure was ready for use.

When the movement began for the improvement of medical education and for the elimination of colleges which could not meet modern requirements, it was through the efforts of Dean Tinkham more than anyone else that the standards of his college were raised to a point which put the institution in Class A. That it has succeeded in keeping its place there is largely due to his skillful and devoted leadership. His services in remodelling the college and in saving it for Vermont and New England cannot be overestimated.

As a teacher, Dr. Tinkham was very successful. His teaching, whether didactic or clinical, was lucid, impressive and practical. As a surgeon, his diagnosis was careful and accurate and his judgment excellent. His operating was characterized by rapidity, dexterity and careful attention to detail, making a rare combination of

boldness and prudence. His hand, naturally deft, had been so thoroughly trained in the dissecting room, that its work was of the very best.

Personally, Dr. Tinkham was extremely attractive. He had a cheery, happy, optimistic disposition, the exterior of a character which remarkably combined sagacity and energy. The charm of his personality was felt by all who came in contact with him. Its effect on his patients is well expressed in Holmes's lines on his ideal physician,

"Whose genial presence in itself combines  
The best of tonics, cordials, anodynes."

#### IN MEMORY OF DR. HENRY J. PERRY

WHILE Thursday's blizzard raged and New England was practically cut off from the outside world, one of Boston's foremost physicians passed to his reward.

A three-line death notice and an inspiring listing of the various societies to which he belonged, was all that the great general public knew of his life and his death.

Yet, deep in the hearts of countless thousands there is overwhelming love and gratitude for the services of this able man; those ciphered thousands whose identity is known only to him, whose sorrows and regrets were more easily borne because of the friendly interest of this man of medicine. No one was beneath his notice; no one but who appealed to his sympathy. Many stammered thanks in broken English, others just pressed his hand and passed out of his life.

When an eminent surgeon passes on, his bier is surrounded by sorrowing patients,—for the death of one's doctor is very close to the heart. They proclaim his skill, recount the heroic measures by which he brought them back from the shadows and one and all are eager and proud to pay him public homage.

Yet, this man, beloved beyond the power of words to express, went down to his grave with a great silent throng of absent mourners sorrowing in his loss and unable to be with him in the last sad office. With hearts bursting for a last glimpse of the beloved little doctor, these ciphered friends must remain a cipher.

Friend of the weak and the unfortunate, he gave his days to the poor and his nights were held for those who could not come to his clinic during the day. Even the few nights a week that he tried to retain for his other interests, were usually spent in ministering to the ill. Midnight frequently found patients still waiting outside his office door and in the small hours of the morning he would be nodding above a steaming sterilizer, carefully preparing shining instruments or their place in his instrument case. Sometimes too utterly fatigued to remove his operating robe he would drop down in his desk chair and hours later a solicitous watchman

would be in a quandary not knowing whether to awake him or let him rest.

Day after day the hard work continued, the years closed down and the rugged spirit was forced to labor hard to meet the demands made on it. Yet he was the happiest, jolliest of pals, always eager for a bit of fun or a clever story.

He was fond of outdoor life and sports and particularly compassionate towards birds and animals. A tiny bird swaying on a twig outside his office window could make him ignore an appointment that might mean prestige or great remuneration. Hurrying out to his car one winter's morning, he came upon a little snow sparrow in distress. Gathering it up and holding it close to his throat that it might receive the warmth of his blood, he carried it to his office where it was revived, fed and nursed back to full vigor before being released. The Audubon Society and the Brookline Bird Club knew him as friend and member.

To know him was to love him. To be privileged to call him friend was all that anyone might ask of here below. To realize his loss is to drink deeply of the iron of life.

If everyone to whom he spoke a comforting word, or for whom he performed some kindly deed, could have stood above his grave last Sunday that snow-covered Wayland cemetery could not have held them.

May the instinct that rises above the understanding of man soon guide his little feathered friends to his resting place to sing their sweetest melodies in honor of the man who loved "even the least of these." He would ask no greater tribute.

ELIZABETH V. McNAUGHT.

#### CHARLES EDWIN BIGELOW, M.D.

DEATH removed Dr. Charles Edwin Bigelow, of Leominster, by a cerebral hemorrhage on February 1, 1926, at the Leominster Hospital, where he had been a member of the staff for many years. He had been stricken in his office the previous day and removed to the hospital.

Dr. Bigelow was born in Danielsonville, Conn., Oct. 11, 1855, receiving his elementary education there and at the Mowrey-Goff private school, Providence, R. I., then attending Brown university from which he was graduated in 1878 and from the Jefferson Medical college in 1882, coming to Leominster during the latter year. He was a member of the Massachusetts Medical Society, and of the medical staff of the Leominster Hospital, in which institution he took a deep interest. Dr. Bigelow was president of the Worcester North District Medical Society in 1902 and served as a councilor from that district from 1903 to 1913.

His fraternal affiliations were with Jerusalem Commandery, K. T., Wilder Lodge, A. F. &

A. M., Thomas Royal Arch Chapter, Aleppo Temple of Shriners, Boston, and Wachusett Tribe, I. O. R. M., of which he was a charter member and the oldest past sachem. Not only was he honored by Leominster tribesmen, but the value of his services was recognized throughout the Massachusetts reservation to the highest degree, in that he was elected great sachem of the state, a position he filled with rare efficiency. When the Ojibway Indians of the Great Lakes region visited Massachusetts, Dr. Bigelow was inducted into the tribe with full tribal ceremonies in the presence of many hundreds of Red Men. The Indians named him "Mellawah-bumdury," meaning "paleface thinker."

Dr. Bigelow was a director of the Leominster Cooperative bank and a member of its investment committee; a member of the Leominster club and of the Pilgrim Congregational church. His wife died about two years ago and two sons before her.

## CORRESPONDENCE

### THE APPOINTMENT OF DR. F. H. WASHBURN TO THE POSITION OF CONSULTING SURGEON TO THE RUTLAND SANATORIUM

February 12, 1926.

Editor, Boston Medical and Surgical Journal:

I should like to announce through your columns the recent appointment by the Public Health Council of Dr. Frank H. Washburn of Holden as Consulting Surgeon to the Rutland State Sanatorium. For some time Dr. Washburn has been giving valuable service to the institution on surgical problems that arise from time to time and it is very fitting that we should recognize this through an appointment to the consulting staff. We are fortunate to have a man of Dr. Washburn's caliber available and interested.

Yours truly,

GEORGE H. BIGELOW, M.D.,

Commissioner of Public Health.

### STOMATOLOGY OR DENTISTRY

To the Editor of the BOSTON MEDICAL AND SURGICAL JOURNAL.

My Dear Colleague:

Your editorial of December 3, with the title "Stomatology or Dentistry?" has just come to my notice, and I find it of interest not only on account of its friendly attitude (with the proper reservations of disquisitive caution), but also because of certain truisms, such as the incontrovertible observation that "there are socially charming dentists and socially impossible doctors." This is delightful; but then follows the surprising implication that the Stomatological movement had a possible origin in the psychological unrest of certain supersensitive dentists, motivated by a sense of social inferiority. This would be amusing if true; but one might inquire, how does this rather gratuitous explanation account for the active cooperation of so many real sure-enough doctors whose chests are already expanded with the cherished title and are thereby not open to the imputation of medico-social climbing? Indeed one might editorially segregate the physicians who support Stomatology, and by similar logic, postulate some sort of professional aggrandizement accruing from the absorption into the orthodox fold of the

numerically considerable profession of dentistry. Be this as it may. I certainly hold no brief as an historian of this movement (which has the sole objective to broaden the great profession of mechanical dentistry into a skilled specialty for the understanding and scientific treatment of diseases of the mouth). Surely these gentlemen, thus qualified, would far outnumber their humbler co-workers at the other end, the protologists, who represent a very useful and highly important department of practice; a specialty which would indeed be limited in value were it not based on a broad knowledge of general medicine.

Perhaps a brief statement of my own reasons for an interest in Stomatology may clarify *ad rem* some of what I regard to be the more ambiguous points of your article.

First, there is an abiding personal conviction that the concept of focal infection marks a stride in prophylaxis and treatment exceeded only by the advance in surgery which followed the development of asepsis. Those of us who are veterans in practice might be led to believe that the old firm of Pluggem & Pullen, dentists familiar to our youth, have long since passed. Perhaps in large measure they have either quit or progressed; but as a matter of fact, some of their successors are an even more dangerous class of mandibular artists—Drs. Savem & Plantem—dentists, some of whom have floated to affluence on the crest of modern human insistence. The laity has a perfectly understandable desire to preserve or else imitate normal dentition; and the deft and cunning art of contemporaneous mechanical dentistry has developed *pari passu* with this imperative popular demand. Unfortunately the average layman is serenely ignorant of the possible sinister consequences of his insistence on having these artistic aids in chewing or exhibits in smiling. If only the multitudes of earnest people who spend hours in church Sunday after Sunday could hear less about Noah and his Ark and other inconsequential things, and more about the determining factors in personal and public health, there would be a great mitigation of many needless human ills. It was to meet this normal popular desire that the practice of dentistry developed into a skilled technical art of preservation and artificial duplication. These procedures, when safeguarded by intelligence and understanding, have been of incalculable benefit; but at the same time they have established new and very active dangers to health, concerning which the laity is largely uninformed. One must admire dental ingenuity when it is harmless and helpful. Our immediate concern is only with the adverse side of this saving and elaborate technique.

You state, with cautious reservation, "that at least nine-tenths of the work required of dentists (italics mine), is of such a nature that it can be performed with perfect satisfaction with the education already provided in dental colleges." This is doubtless true if the only gauge for dental standards is to be the popular demand.

I am greatly dependent upon the counsel and assistance of certain highly qualified dental colleagues who are actively alert to the baneful though often remote systemic manifestations of focal infection; and, on the other hand, I am in almost perennial quarrel with dentists who nonchalantly devitalize living teeth for inadequate cause; who build glittering arrays of gold and porcelain on precarious and unexamined supports; who plant beautifully matched pivot teeth on dead or even decaying stumps; who hide, possibly for years, festering decomposition under crowns of polished gold.

Not long since, I saw a woman bedridden with so-called rheumatism, and a few questions disclosed her exalted fear of extraction. She had found a dentist who was willing to file her rotten stumps to a gum level and build artificial dentures over



these. A colleague who had six or eight pivot teeth glued in more or less rotten roots (concerning which I had many times protested) died of a virulent myo-endocarditis. It is a personal observation that many cases of neuritis have cleared up with unaccountable rapidity upon extraction and curettage of teeth manifestly pathological, but still mechanically good enough for chewing or the anchorage of a bridge.

The present day dentist is a busy man; his activities are mainly centered on local mechanism. What does he know about the tonsils? (For that matter, the same query aptly applies to many physicians, since few of them use a pillar retractor, and a useful tonsillar examination cannot be made without one.) What interest has the average dentist in sinuses unless mayhap a recalcitrant root drops into the antrum? Can he diagnose Vincent's angina, faucial chancre, mucous patches, incipient cancer, tonsillar pemphigus? Can he hope to arrest pyorrhea when rotten tonsils or diseased sinuses perennially reinfect the mouth? Many of our dental colleagues are more or less aware of the importance of these collateral considerations, but they have families to support, and public demand is imperative. "Doctor, if you do not cap and pivot and bridge to hide my deflections, there are other dentists who will." Stomatology will take care of this problem. It is the next step in dental evolution, establishing it where it belongs, as a special department of general medicine. A responsible understanding of the remoter consequences of focal infection demands that dentistry be thus broadened in its scope. In no other way can the main gateway of infective invasion be taken care of with a maximum of prophylactic accomplishment.

Fraternally yours,

WESTON D. BAYLEY.

Philadelphia, Pa.

EDITORIAL COMMENT. The JOURNAL is glad to publish the above letter from Dr. Bayley, who, as president of the American Stomatological Association, is well qualified to present that opinion which is directly opposed to the view expressed in the editorial in question. Careful perusal of his letter fails to convince us that all dentists should become doctors of medicine; it would appear from his own statements that the harmful practices of many dentists result not from their ignorance of what is right, but because of their fear of losing patients. By all means let us have all the stomatologists that the situation demands, and let us broaden the education of dentists if they are insufficiently trained, but why burden the dentist with a load of medical training which will never be needed in his practice?

#### CONNECTICUT DEPARTMENT OF HEALTH

##### MORBIDITY REPORT FOR THE WEEK ENDING FEBRUARY 6, 1926

Diphtheria	51	Cerebrospinal meningitis	1
Last week	48	Chickenpox	120
Diphtheria bacilli carriers	15	Conjunctivitis inf.	18
Whooping cough	71	German measles	11
Last week	88	Influenza	13
Scarlet fever	90	Mumps	11
Last week	109	Pneumonia, lobar	48
Typhoid fever	5	Poliomyelitis	1
Last week	3	Septic sore throat	3
Measles	714	Tuberculosis	25
Last week	779	Gonorrhea	26
Anthrax	1	Syphilis	33
Bronchopneumonia	39		

## NEWS ITEMS

**GREAT PLAGUES**—Dr. Wesley T. Lee, of the Massachusetts Homeopathic Hospital, addressed the Weekly Assembly of Boston University School of Medicine, February 3, 1926. His subject was "The Great Plagues of History."

**AMERICAN BACTERIOLOGISTS**—The Society of American Bacteriologists has elected as officers for 1926: Hans Zinsser, president; Robert S. Breed, vice-president; James M. Sherman, secretary-treasurer; councillors, S. Henry Ayers, C. C. Bass, F. M. Hinton, Karl F. Meyer.

**HEALTH HOUSE IS GIVEN DARTMOUTH**—The gift of a health house to Dartmouth from E. K. Hall of Montclair, N. J., as a memorial for his son, Richard D. Hall, 1927, who died last year, was announced by President Hopkins at the junior class smoker.

The health house will provide congenial surroundings for slightly indisposed undergraduates not in need of hospital care. Mr. Hall, vice-president of the American Telephone and Telegraph Company, a former trustee of Dartmouth and the present chairman of the intercollegiate football rules committee, has already contributed \$150,000 and has offered to supplement this as may be necessary to carry out his conception of the house in every detail.

Mr. Hall formerly lived in Boston and was a member of the law firm of Powers & Hall.—*Boston Herald*.

**RESIGNATION AND APPOINTMENT**—Dr. J. J. Golub, medical director of Beth Moses Hospital, Brooklyn, N. Y., has resigned this position, to take effect March 1, 1926, in order to accept the position of assistant director to Dr. S. S. Goldwater of Mount Sinai Hospital, New York.

Dr. Golub is a graduate of Boston University School of Medicine and served three years as assistant surgeon, U. S. P. H. Service, at the port of Boston.

**BOARD OF REGISTRATION IN MEDICINE**—At the Board meeting held on February 11, the registration of Walter C. Harris of 106 Millbury Street, Worcester, Mass., was suspended for three months from that date.

The registration of Albert Astrin of 38 Allen Street, Winthrop, Mass., was revoked.

## REPORTS AND NOTICES OF MEETINGS

### THE EDWARD K. DUNHAM LECTURESHIP

INVITATIONS have been issued by The Faculty of Medicine of Harvard University to attend the four lectures to be given under the Edward K. Dunham Lectureship for the Promotion of the Medical Sciences on "Recent Advances in Experimental Embryology," by Ross Granville Harrison, Ph.D., M.D., Professor of Comparative Anatomy, Yale University. These lectures will be given Wednesday, February 24, Friday, February 26, Monday, March 1, and Wednesday March 3, at five o'clock, at the Harvard Medical School Amphitheater, Building C.

#### THE EDWARD K. DUNHAM LECTURESHIP

In 1923 there was founded in memory of Doctor Edward K. Dunham (M.D., Harvard, 1886),

the Edward K. Dunham Lectureship for the Promotion of the Medical Sciences. Among the useful purposes for which the Foundation was established was that of binding closer "the bonds of fellowship and understanding between students and investigators in this and foreign countries." The lectures are chosen from "eminent investigators and teachers in one of the branches of the Medical Sciences, or of the basic Sciences which contribute towards the advance of Medical Science in the broadest sense." The lectures, which are given annually, are "free and open to the faculty and students of the Harvard Medical School and College, and all other interested professional persons who may profit by them."

#### OUTLINE OF THE LECTURES

##### FEBRUARY 24. INTRODUCTORY

Definition and significance of development; elementary processes of development; methods of study—observations on the normal embryo; experimental analysis of the process; theories of development; methods of experimental embryology; salient results; recent work on the early stages of development in vertebrates; the organization center.

##### FEBRUARY 26. ORGANIC SYMMETRY

Ground plans of organisms; degrees of symmetry; polarity and bilaterality; asymmetric forms; situs inversus; monsters and twins; symmetry relations of developing limbs and other paired organs; exchange of rights and lefts.

##### MARCH 1. THE NERVOUS SYSTEM

Development of gross form; cellular elements; outgrowth of nerve fibers; factors determining nerve paths; neurotropism theory and neurobiotaxis; nerve patterns in brain and spinal cord; influence of structural and functional conditions on the growth of nerve centers.

##### MARCH 3. CORRELATION IN DEVELOPMENT AND GROWTH

Means of correlation; correlation by direct contact; correlation through the nervous system; internal secretion and development; parabiosis and sex differentiation; organisms composed of parts derived from two different species—chimaeras in plants and animals; limitations of this kind of combination; mutual effects of the two components; experiments on limbs and other organs; effect on heart size and heart rhythm; factors concerned in growth; measurement of these by means of experiments on the eye. General conclusions.

#### HARVARD MEDICAL SOCIETY

The next regular meeting of the Harvard Medical Society will be held as usual in the

Amphitheatre of the Peter Bent Brigham Hospital, February 23, 1926, at 8:15 P. M. Announcement of the program will be given later on the customary postcards that are sent out. All members of the medical profession, medical students and nurses are invited.

#### 12TH ANNUAL MEETING OF MEDICAL WOMEN'S NATIONAL ASSN.

THE Twelfth Annual Meeting of the Medical Women's National Association will take place April 18-19, at Dallas, Texas, in conjunction with the American Medical Association meeting.

The headquarters of the M. W. N. A. are the Hotel Baker. Dr. May Agness Hopkins, Medical Arts Bldg., Dallas, Texas, is the Chairman of the Committee on Arrangements.

Women intending to go to this meeting should promptly make reservations either through Dr. Hopkins or directly at the Baker Hotel, as there will be a big crowd there. Hotel rates are reasonable, a double room with bath averaging \$6.

The terms for railroad transportation should be looked up in the *A. M. A. Journal*, but in many places where there are large numbers of members of the Medical Women's National Association, special cars for the women may be run.

Medical Women passing through New Orleans are especially invited to stop over there and will meet with a cordial welcome from the New Orleans medical women, represented by Dr. Elizabeth Bass, 3513 Prytania St., who is President of the Women Physicians of the Southern Medical Association.

The Texas women, coöperating with the chairman, Dr. Hopkins, are making most attractive arrangements for the meeting. All medical women, whether members of the M. W. N. A. or not, are most cordially invited to participate in this meeting.

#### THE LAWRENCE MEDICAL CLUB

THE monthly meeting of the Club was held Monday evening, January 25, 1926, with Ernest P. Fuller, M.D., of 66 Bailey St., Lawrence. Chairman for the evening: Herbert W. Manahan, M.D., of Lawrence. Subject: Uses of Ultra Violet Therapy in Infants and Children—Edwin T. Wyman of Boston.

This Club has been in existence for 47 years and has held continuous monthly meetings for that period.

#### MEETING OF THE ESSEX SOUTH DISTRICT SOCIETY

THE Essex South District Medical Society held its meeting and dinner on Feb. 3, 1926, at the Hawthorne Hotel, Salem.

At the conclusion of the dinner the society

was addressed by Dr. Walter Timme of New York, who gave a lecture on "Pituitary Headaches," illustrated by numerous lantern slides of X-Ray photographs of the skull, as well as pictures showing stigmata of dyspituitarism. Attendance 78.

WM. T. HOPKINS, *Reporter.*

### GREATER BOSTON MEDICAL SOCIETY

MEETING Tuesday, Feb. 3, 1926, at 8.15 p. m. at the Boston Medical Library.

#### PROGRAM

1. Rheumatic Heart Disease—Dr. William H. Robey.
2. Functional Disorders of the Heart—Dr. Paul D. White.
3. The Chronic Heart in Surgery and Obstetrics—Dr. Burton Hamilton.

Discussion.

Physicians and medical students welcomed. Refreshments.

SAMUEL CLINE, M.D., *Secy.*

#### SOCIETY MEETINGS

##### DISTRICT MEDICAL SOCIETIES

###### Essex South District Medical Society

Wednesday, March 3—Lynn Hospital. Clinic, 5 P. M. Dinner, 7 P. M. Dr. Charles E. Mongan, Somerville. "Some Problems of Present-Day Practice."

Thursday, May 6—Censors meet at Salem Hospital, 3:30 P. M. Tuesday, May 11—The Tavern, Gloucester. Annual meeting. Speaker to be announced.

###### Essex North District Medical Society

May 5, 1926—The annual meeting at the Anna Jaques Hospital, Newburyport.

###### Middlesex East District Society

April 14—At the Harvard Club at 6:30 P. M. Address by Dr. William E. Ladd; subject, "Kidney Affections in Childhood."

May—Annual meeting, Colonial Inn, North Reading. Subject and speaker to be announced.

###### Suffolk District Medical Society

February 24—At 8:15 P. M. Surgical Section. "Post-operative Care of Surgical Cases," Dr. Dean Lewis, Chicago. "Surgical Convalescence," by Dr. John Bryant.

March 31—At 8:15 P. M. Medical Section. "Some Experiments in Group Physical Examination," Dr. Roger I. Lee.

April 28—At 8:15 P. M. Annual meeting. Election of officers. "Some Diagnostic, Prognostic and Therapeutic Aspects of Disorders of the Blood," Drs. George R. Minot, Cyrus C. Sturgis and Raphael Isaacs.

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

### BOOK REVIEW

*Lactobacillus Acidophilus*. By NICHOLAS KOPPELOFF, Ph.D. Associate in Bacteriology, Psychiatric Institute, Ward's Island, New York. The Williams and Wilkins Co., Baltimore. 1926. 212 pages. Price \$5.00.

Metchnikoff popularized the idea of sour milk therapy. Unfortunately, he chose an organism that cannot be made to grow in the human intestine, though it has been occasionally recovered from the feces. The experimental data which Metchnikoff and his co-workers present

is very meager, but that of their critics is not much better. Koppeloff presents detailed laboratory and clinical data from a total of fifty-four cases. He emphasizes the necessity of quantitative estimation of the number of viable organisms ingested and the number of the same type of organisms recovered from the stools. He gives due credit to the important work that Rettger and his co-workers at Yale University have published, using white rats and four human subjects, but feels the need of more accurate estimation of the dosage. His conclusions from clinical and laboratory observation are:

*L. bulgaricus* cannot be implanted in human intestine (12 cases).

*L. acidophilus* can be implanted (54 cases) and in many cases persists for a considerable time after cessation of the treatment, especially if milk sugar be added to the diet.

Cases of constipation and diarrhea show marked benefit in almost every instance.

Indican in the urine is no measure of intestinal putrefaction or of improvement under treatment. (48 cases—500 analyses in course of one year.)

The ingestion of lactic acid preparations and lactic acid caused the formation of strongly acid urines (48 cases). The acidity of the urine was found to vary with the lactic-acid-producing ability of the preparation. This suggests caution in prescribing large amounts of lactic acid milk, especially when there is a tendency toward acidosis.

Essentially, *L. acidophilus* therapy is a mass-inoculation phenomenon, and a reduction in number of viable organisms is accompanied by a corresponding diminution of activity. Other investigators have, as a rule, failed to indicate the number of viable organisms they administer. This is a matter of importance, both practically and scientifically, and one which may presumably account for certain discordant results.

U. S. P. quality lactose and dextrose may be used, as c.p. grade of sugars is not required.

"The use of *L. acidophilus* should for the present be limited to preparations from scientific laboratories rather than extended to the unsatisfactory products now being exploited commercially."

*Acidophilus* milk may be kept for three days, preferably at room temperature. Whether at room or ice-box temperature, the number of viable organisms diminishes very rapidly on the fourth day, but remains at a low level for some time.

The volume includes a bibliography with 186 titles, an index and five excellent illustrations. There is an appendix, giving the preparation of milk and culture media, methods for fecal analysis, and also a modification of Grams Method, useful for straining smears of feces.